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ABSTRACT

Title II, Section 504 of the U.S. Department of Education's Office for Civil Rights (OCR) requires community colleges to provide access to print and computer-based information for students with visual impairments. In response, the Chancellor's Office of the California Community College system prepared a budget change proposal (BCP) for the 2000-2001 fiscal year to request funding to assist colleges with acquiring this equipment and staff. Part 1 of this report offers guidelines for colleges to use in response to requests for materials in alternate media. The types of alternate media available to those with visual impairments include: (1) audio/readers; (2) Braille; (3) tactile graphics; (4) large print; and (5) electronic text. This section also discusses considerations for formatting e-text and designing software and Web pages, resolving disputes, and establishing policies and procedures. Part 2 presents the guidelines for implementation of Assembly Bill 422, which requires that publishers of certain instructional materials provide electronic versions of those materials to community colleges so that students may have access to the materials in alternate media. This section covers certification of requests, security of e-text, revising files received from publishers, and recommended processes for handling requests. Appendices include instructions for formatting Braille documents, information on legislation, sample forms and letters, and a glossary of terms. (NB)

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California Community Colleges

Guidelines for Producing Instructional and Other Printed Materials in Alternate Media for Persons with Disabilities

April 2000

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California Community Colleges

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April 2000

Developed By:

The Chancellor's Office
In Collaboration with the Alternate Media Workgroup

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Preface

In March 1996, the U.S. Department of Education, Office for Civil Rights (OCR) undertook a statewide review of the extent to which community colleges were meeting their obligation under Title II and Section 504 to provide students with visual impairments access to print and computer-based information. OCR concluded that the California community colleges employed "methods of administration" which substantially restricted accomplishment of the educational objectives of community college students with visual impairments.

The OCR report, which was issued in January 1998, asked the Chancellor's Office to take steps in nine separate areas to improve access for blind and visually impaired students. One of these areas involved the provision of textbooks, instructional materials, and other printed information in alternate media such as braille, large print, or electronic text. OCR found that many colleges did not have adequate systems in place for responding in a timely and efficient manner to requests for materials in alternate media. OCR concluded that, in order to address this problem, the Chancellor's Office should work with the colleges to develop a coordinated systemwide approach that would streamline the present time-consuming and labor-intensive process of converting hardcopy print into electronic text and/or braille.

The Chancellor's Office has been working for the past two years to put in place the policies and procedures necessary to respond to the OCR report. In the Fall of 1998, the Chancellor asked the Consultation Council to establish a special Alternate Media Workgroup to advise staff regarding the best approach to take in addressing the problem of producing materials in alternate media.

After discussion of various options with the Workgroup, the Chancellor's Office decided to prepare and submit a Budget Change Proposal (BCP) for the 2000-2001 fiscal year requesting funding to assist colleges with acquiring the equipment and trained staff they will need to respond to requests for alternate media. The BCP also requests funding to establish a statewide Alternate Media Center which would centrally handle the larger or more difficult requests.

Final decisions about the 2000-2001 budget will not be made until July 2000. Even if the proposal is funded to establish the Alternate Media Center, it probably would not be operational until the middle of 2001 at the earliest. Moreover, the plan proposed in the BCP contemplates that local college staff will make decisions about how to satisfy requests for alternate media and that most small documents, especially those needed with a short turn-around time, would still be handled locally. Thus, even if the BCP is fully funded, colleges will continue to have considerable responsibility for production of materials in alternate media.

Part I of this document sets forth guidelines for colleges to use in responding to requests for materials in alternate media. The guidelines are based on the recommendations of the Workgroup and have been reviewed and revised based on input from the Disabled Student

Programs and Services Regional Coordinators, the High Tech Center Training Unit Advisory Committee, and other interested parties.

In a related development, on September 15, 1999, California Governor Gray Davis signed into law Assembly Bill 422 (Steinberg) which requires publishers of instructional material to provide the material at no cost in an electronic format for use by students with disabilities at the University of California, California State University, and California Community Colleges. This new law, which became effective January 1, 2000, will assist colleges in meeting their pre-existing obligations to provide instructional materials in alternate media. The electronic text supplied by a publisher may be used to produce large print, translated and sent to a braille embosser, or accessed directly with speech synthesizers or refreshable braille displays.

However, *California Education Code*, Section 67302, which was added by AB 422, provides that the Board of Governors must adopt guidelines for implementation of the new law. Part II of this document addresses the procedures to be used by colleges in taking advantage of the option provided by AB 422 to obtain electronic text from publishers.

Part I

PRODUCING MATERIAL IN ALTERNATE MEDIA

A. LEGAL REQUIREMENTS

Both state and federal law require community colleges to operate all programs and activities in a manner which is accessible to students with disabilities.

At the federal level, requirements for access for persons with disabilities were first imposed on recipients of federal funding by Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794) and its accompanying regulations set forth at *34 Code of Federal Regulations* (C.F.R.), Section 104. Similar requirements were later imposed on all public entities, regardless of whether or not they receive federal funding, by the Americans with Disabilities Act (42 U.S.C. § 12100 et seq.) and the regulations implementing Title II of the ADA which appear at 28 C.F.R. § 35.

In particular, the Section 504 regulations and the regulations implementing Title II of the Americans with Disabilities Act (ADA) contain nearly identical provisions stating that recipients of federal funds and public entities in providing any aid, benefit or service, may not afford a qualified individual with a disability an opportunity to participate that is not as effective as that provided to others. (See 34 C.F.R. § 104.4 (b)(1)(iii) and 28 C.F.R. § 35.130(b)(1)(iii).) Title II recognizes the special importance of communication, which includes access to information, in its implementing regulation at 28 C.F.R. § 35.160(a). The regulation requires that a public entity, such as a community college, take appropriate steps to ensure that communications with persons with disabilities are as effective as communications with others.

The United States Department of Education, Office for Civil Rights (OCR) is responsible for ensuring that all educational institutions comply with the requirements of all federal civil rights laws, including Section 504 and Title II of the ADA. As a result, the opinions of OCR are generally accorded considerable weight by the courts in interpreting the requirements of these laws. OCR has had occasion to issue several opinions applying the requirements of the Section 504 and ADA regulations to situations involving access to instructional materials.

OCR has held that the three basic components of effective communication include: "timeliness of delivery, accuracy of the translation, and provision in a manner and medium appropriate to the significance of the message and the abilities of the individual with the disability." (OCR Docket No. 09-97-2145, January 9, 1998.)

In applying this test to a case involving access to materials in a college library, OCR commented that:

> "When looking at exactly which of its resources a library is obligated to provide in an accessible medium, the short answer is any resources the library makes available to nondisabled patrons must be made accessible to blind patrons. This includes the library catalogue, the archived microfiche, daily newspapers, and the internet (if that is a service provided to sighted patrons). A categorical decision by a public library not to even consider a request by a patron for a particular alternative format is in most instances a violation of Title II. However, when determining what alternative format is most appropriate, a library may take into account how frequently the material is used by patrons and the longevity of the material's usefulness. For instance, more serious consideration should be given to translating into braille frequently used reference materials which have a long (sic) 'shelf-life' than would be true for daily newspapers." (OCR Docket No. 09-97-2002, April 7, 1997.)

In another case, OCR required a college to provide a textbook in braille because

> "in some situations, the subject matter of the textbook is particularly ill-suited to an auditory translation. For example, mathematics and science textbooks, as well as textbooks to assist in acquiring proficiency in a written (rather than conversational) foreign language, ordinarily rely heavily on unique symbols, equations, charts, grids, subscripts, punctuation, underscores, and accent marks, which are often hard to effectively convey through auditory speech." (OCR Docket No. 09-97-2145, January 9, 1998.)

OCR also points out that the courts have held that a public entity violates its obligations under the ADA when it only responds on an ad hoc basis to individual requests for accommodation. There is an affirmative duty to develop a comprehensive policy in advance of any request for auxiliary aids or services.

There are also state laws and regulations which require community colleges to make printed materials available in alternate media. *California Government Code*, Section 11135 et seq. prohibits discrimination on various grounds, including mental or physical disability, by entities receiving funding from the state of California. The Board of Governors has adopted regulations at Title 5, *California Code of Regulations*, Section 59300 et seq. to implement these requirements with respect to funds received by community college districts from the Board of Governors or Chancellor's Office. These regulations require community college districts and the Chancellor's Office to investigate and attempt to resolve discrimination complaints filed by students or employees.

B. SCOPE AND PURPOSE

The remainder of this document sets forth guidelines developed by the Chancellor's Office to address specific issues community college districts will face in meeting their legal obligation to make instructional materials and other information resources available in alternate formats to persons with disabilities.

It should be noted that the legal requirements discussed in these guidelines are not limited to students in the classroom environment. A college would be required to make available, upon request, in alternate media, any publication it offers to the general public such as the college catalogue, announcements about cultural or recreational events sponsored by the college, job announcements, etc. Nevertheless, since most requests are likely to come from students, the primary focus in these guidelines will be on providing instructional materials in accessible formats. Colleges should, however, establish policies and procedures which take into account the possibility that others will also make such requests.

It is also important to keep in mind that colleges are required to provide access to all instructional materials or other information resources regardless of whether the source material is in printed, electronic, or some other form. On September 3, 1999, the Chancellor's Office issued guidelines addressing accessibility of curriculum, web pages, software and hardware used in distance education courses, *Distance Education: Access Guidelines for Students with Disabilities, August 1999*. Although those guidelines dealt specifically with distance education, the principles and technical information they contain are also relevant here and should be applied in making electronic resources accessible for use on-campus. This would include, for example, materials on CD-ROM used in a classroom, software used in computer labs, a database of job opportunities in the Career Center, or a web page providing information about college-sponsored events open to the general public. The present guidelines do provide some information on this subject (see Section K), but will, for the most part, focus on ways of converting instructional materials or other resources from print into alternate media.

As used in these guidelines, the terms "alternate media" or "accessible formats" generally refer to methods of making information accessible to persons with disabilities.[1] The most common types of accessible formats are audio, braille, tactile graphics, large print, or electronic text. OCR has found that most colleges rely heavily on use of readers or pre-recorded audio tapes as a means of making printed material accessible for blind or visually impaired students. (OCR Docket No. 09-97-2145, January 9, 1998.) Although these guidelines will briefly discuss the appropriate use of readers and audio format, the primary purpose of the guidelines is to help colleges identify situations where audio may not be an adequate medium and to describe how to make materials available in other formats.

[1] The OCR investigation dealt with services for blind and visually impaired students and the Chancellor's Office was asked to develop guidelines for production of materials in alternate media for that population. While the primary purpose of these guidelines is to address the issues raised by OCR, it is recognized that individuals with learning disabilities or other types of disabilities may also benefit from materials in alternate media.

These guidelines are not legally binding on districts, but the Chancellor's Office will apply these guidelines in determining whether a district has met its obligations under Title 5, Section 59300 et seq. Districts that follow these guidelines will generally be regarded as having met those obligations. Districts that do not follow these guidelines will bear the burden of demonstrating that they have achieved compliance with their legal obligation to provide access to printed materials.

C. BASIC PRINCIPLES

The following are general principles that should be followed in ensuring that instructional materials and other information resources are accessible to and usable by persons with disabilities. They represent the general concepts of the ADA and its regulations but do not provide a detailed legal analysis of the ADA requirements. Persons utilizing this document who are unfamiliar with the ADA may wish to consult the campus ADA Coordinator or Disabled Student Programs & Services (DSP&S) Coordinator for further interpretation. In the remainder of this document, specific guidelines will be provided for resolving access issues with respect to particular situations.

1. Colleges should establish procedures for responding in a timely manner to requests for materials in alternate media. [2] Issues concerning requests by students should be resolved through appropriate campus procedures as defined under Title 5, Section 56027.

2. Whenever possible, information should be provided in the alternative format preferred by the person making the request (i.e. braille, audio, tactile graphics, large print, electronic text). (28 CFR § 35.160(b)(2).)

3. If it would be difficult or expensive to provide the material in the requested medium by the time it is needed, the college may offer to provide it in another medium *which would be equally effective* given the needs of the person requesting the accommodation. To determine whether a proposed alternative format would be equally effective, the proposed alternative should be compared to the format originally requested in terms of accuracy, timeliness of delivery, the "shelf-life" or longevity of the material, and the extent to which the medium is appropriate to the significance of the message and the abilities of the individual making the request. Methods which are adequate for short, simple or less important communications may not be equally effective or appropriate for longer, more

[2] Timeliness is a relative term which depends on the context. For a student who requests a textbook in an accessible format, responding in a timely manner would involve providing the book in alternative format by the time other students in the class will be called upon to use the book. If the entire text cannot be supplied in alternate format by that time, it may be necessary to deliver it in installments that keep pace with the class. A student who requests the list of student organizations in Braille might be able to wait a while if there is no particular deadline by which he or she needs to decide about participating in an organization. On the other hand, a person who requests a large print copy of the program for a play will need it by the time the play is presented and providing it later will be of little value.

complex, or more critical material. (Example: It may be appropriate to have articles or handouts that will be used as general background material for a course read onto audio tape for use by a blind student. However, it would probably be legitimate for a braille user to expect that the course syllabus, critical reference materials, and texts to be discussed in class would be available in braille.)

4. Materials should be provided in a timely manner in the medium requested, or in another equally effective format, unless doing so would fundamentally alter the nature of the program or activity or result in undue financial and administrative burdens on the district. In such cases, the college must nevertheless provide an alternative accommodation which will permit the individual with a disability to participate in the program or activity to the maximum extent possible. (28 CFR § 35.164.)

5. After the adoption date of these guidelines, any instructional resources or materials purchased or leased from a third-party provider or created or substantially modified "in-house" must be accessible to students with disabilities, unless doing so would fundamentally alter the nature of the instructional activity or result in undue financial and administrative burdens on the district.

6. Colleges are encouraged to review all existing curriculum, materials and resources as quickly as possible and make necessary modifications to ensure access for students with disabilities. At a minimum, the Chancellor's Office will expect that the instructional resources or materials used in each course will be reviewed and revised as necessary when the course undergoes curriculum review pursuant to Title 5, *California Code of Regulations*, Section 55002 every six years as part of the accreditation process. In the event that a student with a disability enrolls in a course before this review is completed, the college will be responsible for acting in a timely manner to make instructional materials or resources used in the course accessible, unless doing so would fundamentally alter the nature of the instructional activity or result in undue financial and administrative burdens on the district.

7. In the event that a discrimination complaint is filed alleging that a college has failed to provide materials in an appropriate alternate media, the Chancellor's Office and the OCR will not generally accept a claim of undue burden based on the subsequent substantial expense of providing access, when such costs could have been significantly reduced by considering the issue of accessibility at the time the instructional or other materials were initially purchased.

8. Ensuring that instructional materials and other information resources are accessible to students with disabilities is a shared college responsibility. All college administrators, faculty and staff who are involved in the development and use of such materials or resources share this obligation. The Chancellor's Office will make every effort to provide technical support and training for faculty and staff

involved in the creation of accessible instructional materials and information resources.

D. ESTABLISHING POLICIES AND PROCEDURES

As discussed above, OCR has held that it is not sufficient for a college to wait and deal on an ad hoc basis with requests for materials in alternate media. Rather, policies and procedures for dealing with such requests should be developed so that requests can be handled promptly and efficiently when they do arise. Similarly, the regulations governing the Disabled Students Programs and Services (DSP&S) programs require that colleges receiving DSP&S funds establish policies and procedures for responding to requests for academic adjustments, including requests for instructional materials in alternate media. (Title 5, § 56027.)

For those colleges that already have in place policies and procedures for dealing with accommodation requests, those policies should be reviewed in light of these guidelines to be sure they deal appropriately with issues related to provision of materials in alternate media. Colleges that have not yet developed such policies should do so, consistent with these guidelines, and implement those policies as quickly as possible.

One important aspect of dealing with production of alternate media is adequate advance notice and planning. It may be desirable to have faculty, bookstore managers, DSP&S staff, and organizations of students with disabilities work together to devise a system which will give the needed lead time for obtaining materials in alternate media with the least disruption for all concerned. Faculty should be strongly encouraged to make textbook selections as far in advance as possible and to avoid changing the selection unless there are compelling reasons. Bookstores should remind faculty about the need to place orders as early as possible and should process the orders promptly once they are received. Faculty should also be asked to provide syllabi, handouts, and other materials in E-text whenever possible.

The policy should specify how far in advance a student needs to make a request for materials in alternate media in order to ensure a high probability that the college will meet the request. This notice requirement needs to be reasonable and take into account when faculty decide on textbook selections, when students register, and the fact that last minute changes will occur despite the best planning. Students should be strongly encouraged to plan their course schedules as early as possible and to take advantage of advanced registration. However, the policy should clearly state that every effort will be made to meet late requests.

The notice required should be based on the type of material being requested. For example, it would probably only take a few days to produce a short class handout in braille if the college has its in-house braille production system operational. One or two days might even be reasonable if the faculty member makes the handout available in E-text. On the other hand, getting a textbook recorded or produced in braille from outside

sources could take several months. It may be necessary to arrange to have the material shipped in installments sequenced to follow the syllabus and, even then, students should be asked to make requests as soon as faculty have made their selections. [3]

The policy should identify who should receive requests for alternate media and direct other faculty and staff who may receive requests to forward them to the designated individual. Although it need not be spelled out in the policy itself, colleges should also identify in advance the person or persons at the college who will be responsible for the actual production of alternate media or for obtaining it from outside sources. Those persons should be familiar with these guidelines, know how to produce or obtain all types of alternate media as quickly as possible, and have readily available the equipment, materials, and/or outside resources they will need.

Policies should include methods of informing students, faculty, staff, and the general public about the availability of materials in alternate media and the process to be used to make requests. Publications and documents should contain a brief notice indicating that the material is available in alternate media and who should be contacted to obtain it.

Colleges should also consider preparing some basic materials in alternate media even without a specific request. This is most appropriate for materials that would be of interest to a broad audience, particularly where such materials are available on demand to nondisabled individuals. For example, the college catalog and schedule of courses should be available in electronic text suitable for use with screen reading software. It would also be desirable to have these materials formatted and proofed for producing hardcopy braille. Then, if a request for braille is made, it can be produced relatively quickly. However, if no one needs the catalog or course schedule in braille, the college will avoid the full expense of producing it and will not need to deal with storing bulky unneeded materials.

E. TYPES OF ALTERNATE MEDIA

At this point, it may be useful to briefly discuss the various types of alternate media and the advantages and disadvantages of each.

1. Audio/Readers

Providing materials in a recorded audio format is one method of making information accessible to persons who are blind or visually impaired. Many individuals with learning disabilities also use materials in audio format because they find it

[3] This will mean that colleges will be beginning to process requests before the class begins and perhaps even before the student has registered for the class. Colleges may wish to impress upon students that changing their plans after work has begun will be expensive and disruptive to the program. However, colleges are well advised to encourage and act on early requests in order to be able to provide textbooks in alternate media in a timely manner. If a student makes a request well in advance and a college does not act, it will be difficult to justify failure to have the book available in alternate media at the beginning of the class.

difficult to process printed information. Audio material is commonly recorded on cassette tapes, but it may also be stored on CD-ROM or other storage media. It is also possible to produce material in audio format by having E-text read with a speech synthesizer.

A large number of literary works and standard college textbooks are already available in audio format from organizations such as Recordings for the Blind and Dyslexic (RFB&D). [4] Such organizations will also usually record books on request, although this may take some time.

Recorded books are generally available for free or at nominal cost.[5] They permit students to read large volumes of material relatively quickly and easily using inexpensive and readily available equipment. However, it is difficult to convey highly technical material, especially information which uses graphic symbols or charts (e.g. mathematics, science, foreign language, economics, or musical notation) in an audio format. Also, audio tapes are not well suited for use during classroom discussion or for accessing reference works, because locating specific passages on a tape is time-consuming and cumbersome.

Readers may also be used to provide access to printed materials. *California Education Code*, Section 67300 requires the California State Department of Rehabilitation (DR) to pay for reader services for community college students who are also clients of DR. DSP&S funds may also be used to provide reader services for those who cannot obtain them from DR.

Having material read aloud may be the most convenient and efficient way for a blind or visually impaired individual to deal with short handouts or articles, materials that are time sensitive, or forms that require brief written responses. Textbooks or other longer materials can also be accessed using readers, and some individuals prefer this approach, but it will generally be desirable to record such materials for subsequent review. Ideally, this should be done in a recording studio or other quiet environment with good quality recording equipment. If audio tapes are to be used, the recording equipment should have the capability to add tone-indexing signals that can later be used to more quickly locate pages and chapter headings. Readers should be familiar with the vocabulary of the source material and the best results will be obtained by having a second person read along to monitor the accuracy of the recording.

[4] The vast majority of the RFB&D collection is on audio tape, but RFB&D has begun to produce some books in new digital form and plans to significantly expand such offerings in the near future.

[5] State and federal nondiscrimination laws prohibit charging a student a fee for provision of accommodations. If a college chooses to rely on an outside provider, such as RFB&D, to supply taped materials, the college will bear the responsibility to pay any fees for use of such services. However, the Chancellor's Office permits DSP&S funds to be used for this purpose.

However, it may often be difficult to find or train readers to read with sufficient accuracy, clarity, and speed, especially for more complex materials. As with recorded books, it is difficult to handle highly technical or graphically-oriented materials through use of live readers. Moreover, a student using a reader is restricted to reading when the reader is available and is always at some risk that the reader will fail to arrive as scheduled for various reasons.

2. Braille

Braille is a system of reading and writing for blind individuals. The basic unit is the braille cell. It is composed of six raised dots configured as shown below.

dot 1 ** dot 4
dot 2 ** dot 5
dot 3 ** dot 6

From these six raised dots you can get 64 possible combinations. There are many more inkprint symbols than the 64 braille symbols. For example, most computer systems handle about 96 different inkprint symbols. This problem is solved by using contractions, assigning more than one braille cell to represent certain inkprint symbols, and in some cases, by using specialized codes for unique applications. Thus, learning to read and write braille requires considerable training and practice.

Approximately 10 percent of blind and visually impaired individuals use braille. For those who are proficient in its use, braille is usually the preferred medium for reading, at least for situations where mastery of detail is required.

Braille can be quickly referenced without any equipment and can include charts, tables, simple diagrams, and a reasonable approximation of the format of a printed document. Specialized braille codes exist for representing advanced mathematics, chemistry, foreign language, and musical notation. Braille also enhances literacy, writing skills, and employability because the reader naturally learns spelling, punctuation and how printed materials are organized.[6]

On the other hand, braille is bulky and most braille readers cannot read large volumes of material in braille as quickly as is possible with recorded books or synthetic speech and electronic text. Braille is also somewhat difficult and expensive to produce, but the use of computer translation software and braille printers is ameliorating this to some degree.

It is recommended that each college have the in-house capacity for producing at least short, simple braille documents. This can be done using readily available braille translation software and specialized braille printers. As of 1999, colleges

[6] For this reason, colleges may wish to consider offering special classes in Braille. This would be an appropriate activity under the DSP&S program.

should expect to pay around $5,000 for the hardware and software necessary for small scale in-house braille production. [7]

If funding is provided in the state budget, the Chancellor's Office plans to establish an Alternate Media Center capable of handling most requests for transcription of longer or more complex materials. This center is expected to be operational by Spring of 2001. In the meantime, brailling of large or complex materials can be out-sourced to agencies and organizations which produce braille documents commercially. As of 1999, commercial production costs average about two dollars per braille page with one single spaced print page equaling approximately two print braille pages. The cost will depend, at least in part, on the nature of the material, with mathematics or other specialized materials being considerably more expensive. Production time through commercial providers can vary from days to weeks. A list of some organizations which provide braille transcription services is provided in Appendix II.

Braille documents should be printed on heavy paper stock designed for use with braille printers. (See Appendix III for suppliers of braille paper.) Documents should be formatted to preserve critical page layout elements (i.e. columns, tabular data, etc.) and proofed for accuracy. Contracts with outside sources should specify that such services will be provided. With respect to in-house production, colleges should understand that, even with the best available braille translation programs, all but the simplest documents will still require human intervention and proofreading by a trained person who reads braille.

Whenever possible, mathematics, tests, legal documents, and other materials where accuracy is crucial should be prepared by a braille transcriber certified by the Library of Congress. If such personnel are not available on staff, the transcribing may be contracted out, provided the work can be performed in a timely manner. Where accuracy is crucial and a certified transcriber is not available, other precautions will need to be taken. For example, some colleges provide a student with a test in braille and give the proctor a printed copy so he or she can provide clarification if any question arises about the braille translation.

With these caveats in mind, we have provided in Appendix IV some very basic tips on formatting braille documents that may be useful in handling simple and less critical materials.

3. Tactile Graphics

In the past, the only way to make diagrams and other graphic images accessible for blind persons was to copy them by hand using a tracing wheel which produced a line of fine raised dots. Today, many braille printers can, using specialized

[7] The budget augmentation requested by the Chancellor's Office for fiscal year 2000-2001 would provide funding for such equipment. It is anticipated that the Foundation for the California Community colleges will organize a voluntary cooperative purchase for a package of recommended hardware and software.

software, produce some simple tactile graphics. There is also a technology which allows diagrams printed on special heat-sensitive paper to be heated in a specialized device to produce raised lines and images. [8]

It must be emphasized that there are significant limitations to the use of tactile graphics. It is not possible to represent or recognize fine detail using tactile graphics. Sometimes it will be possible to overcome this problem by increasing the scale of the diagram, but this may be impractical in many instances.

4. Large Print

For those with sufficient vision, large print is often desirable. Although they are somewhat bulkier, materials in large print have all the advantages of regular print. They are relatively portable, require no special equipment, convey all the graphic and spatial information contained in the original, and can be easily referenced. Producing large print copies of materials is simple if the document is not too lengthy and is available in electronic text, although some reformatting may be necessary. However, relatively few textbooks are available in large print and those that are tend to be expensive.

One alternative to hardcopy large print is the use of a closed-circuit television (CCTV) system which permits magnification of the page being viewed. This may be equally effective for many situations, but it is not possible to move through printed material with a CCTV as quickly or easily as if it were available in hardcopy large print. Moreover, older equipment may not be very portable. Thus, use of a CCTV may not be appropriate for accessing reference works or for handling some types of in-class assignments.

5. Electronic Text

In recent years, the use of electronic digital text (E-text) has emerged as a convenient and popular method of providing access for those who cannot use standard printed materials. Partially sighted individuals can use E-text by taking advantage of built-in options within many standard software applications (e.g. adjusting font size) or through the use of specialized screen magnification software. E-text can also be used with screen reading software to output the text to a speech synthesizer or refreshable braille display. The main advantage of E-text is that it can be easily stored, can be searched and indexed, and can be converted to large print or hard copy braille through use of a translation program.

E-text exists in many formats. Plain E-text (usually known as ASCII or DOS text) is the universal standard for exchange of text documents and can be used by

[8] Some diagrams and charts that illustrate science textbooks have already been produced using this latter technology through a special program at Purdue University: Tactile Access to Education for Visually Impaired Students. For the website address for this project, see Appendix II.

almost any word processing program. Such files typically have a ".txt" extension.

One drawback to use of plain E-text is that most formatting (tables, columns, tabs, bold, italic, etc.) will be lost. In some instances it will be possible to avoid this problem by using files in other common formats such as Microsoft Word or rich text format (".rtf"). Such files will preserve formatting and can be used by some speech output and braille translation programs. However, it is critical to confirm in advance that the hardware and software being used to access the document can handle a specialized file format.

Most text created on campus or downloaded from websites should already be available in either ASCII or one of the common word processing formats. Other proprietary formats used by publishers or manufacturers of electronic digital text may contain cryptic formatting for security purposes. If the text requires a proprietary viewer, it may be difficult or impossible to convert the file into a useable format. For this reason, colleges should henceforth avoid purchasing instructional software or other materials which incorporate such proprietary formats, unless the supplier will provide an alternative format that will support access or the college is certain it has the software, equipment, and expertise to perform the conversion.[9]

If the document is not readily available in any electronic form, it will be necessary to use a scanner to create an electronic version and then proofread it to eliminate scanning errors. This is often a time-consuming process, especially for longer documents. The passage of AB 422, which requires publishers of certain instructional materials to provide E-text, should help with this problem. Guidelines for implementation of AB 422 are set forth in Part II of this document. However, there are exceptions to the new law and there will continue to be situations in which scanning will be necessary.

If the E-text was obtained through scanning or was converted to ASCII from some more sophisticated or proprietary format, there is a high probability that some reformatting will be necessary to restore or simulate the structural integrity of the document. Maintaining or restoring structural integrity requires that the contents, headings, indices, footnotes, and other structures are accessible and provide for fast and efficient reading and comprehension. Suggestions about how to address these issues are set forth in Section K.

[9] To avoid such problems and maximize the utility of the materials obtained, the guidelines for implementation of AB 422, which are contained in Part II of this document, recommend that all information be obtained from publishers on a CD-ROM be in either Microsoft Word, Rich Text, or ASCII format.

F. VERIFICATION OF DISABILITY AND FUNCTIONAL LIMITATIONS

Although some materials (such as the catalog) should be available in an accessible format on demand, in most instances the process of producing alternate media will be initiated by the receipt of a request. Once a request is received, the first step is to determine whether the person making the request has a disability which requires such an accommodation. Verifying the person's disability is permitted, but not required, under the ADA and Section 504. However, with respect to serving students, verification of disability is required if the college plans to claim DSP&S funds for serving the student. (Title 5, § 56006.) In addition, the DSP&S regulations require a determination that the student's disability results in a functional limitation which impedes the student's participation in the educational programs and activities of the college. (Title 5, § 56004.) Where a student requests materials in alternate media, this would require a showing that the student's impairment makes it difficult or impossible for him or her to read printed materials.

G. INDIVIDUAL PREFERENCE AND OFFERING ALTERNATIVES

Up to this point, the approach to handling a request for alternate media has involved the same type of analysis required in the case of any other type of accommodation issue. However, there are special considerations that must now be taken into account. By far the most significant of these considerations is the preference of the person making the request concerning the type of alternate format that will be most effective. Section 35.160 of the regulations implementing Title II of the ADA specifically states: "When determining what type of auxiliary aid and service is necessary, a public entity shall give primary consideration to the requests of the individual with disabilities." (28 CFR § 35.160(b)(2).) Thus, whenever possible, information should be provided in the alternative format preferred by the person making the request (i.e. braille, audio tape, large print, electronic text).

However, if it would be unduly difficult or expensive to provide the material in the requested medium by the time it is needed, the college may offer to provide it in another medium *which would be equally effective* given the needs of the person requesting the accommodation. To determine whether a proposed alternative format would be equally effective, the proposed alternative should be compared to the format originally requested in terms of accuracy, timeliness of delivery, the "shelf-life" or longevity of the material, and the extent to which the medium is appropriate to the significance of the message and the abilities of the individual making the request. Methods which are adequate for short, simple or less important communications may not be equally effective or appropriate for longer, more complex, or more critical material.

In deciding whether a given format would be appropriate for the needs of a particular individual, factors to consider include the person's learning style (tactile, auditory, visual, or multimodal), the person's proficiency in working with the format (e.g. knowledge of braille), and, for electronic text, the extent to which necessary hardware and software is

readily available. E-text should be provided in a format that will work with commonly available access technology, but colleges should be prepared to provide access to the necessary equipment and software and training for students who may not be familiar with its use.

H. ANALYZING REQUESTS

Based on the foregoing, it is recommended that colleges use the following steps as a general guide to analyzing and responding to requests for materials in alternate media. However, it must be emphasized that this is not a comprehensive or definitive discussion of how to handle every conceivable situation that may arise. Ultimately, it will be necessary to apply the legal principles discussed above to the particular facts of each case to decide what form of accommodation is most appropriate.

1. First, whenever possible, give preference to the student's choice of media.

2. If the student wants material in audio format, the request should generally be granted because chances are this will be the easiest and least expensive approach. Such requests could be satisfied by ordering recorded books which are already available, arranging to have the book recorded by an outside organization such as RFB&D, or having material read aloud and, where appropriate, recording it on cassette tape or some other storage medium. The college could also use E-text read with a speech synthesizer, but this may not work for material containing unusual words or symbols or complex formatting.

3. Colleges should usually grant requests for braille or large print, so long as:

   (a) the student has the training and tactile or visual acuity to efficiently use the requested material; and

   (b) the material is already available[10] or it is short and simple enough to be produced on campus or through a contract supplier in a timely manner.

4. If the student wants material in braille or large print that cannot be provided in a timely manner or would be very costly, then it would be appropriate to try to identify an equally effective substitute through collaboration between the student and the college staff person.

[10] At a minimum, college staff should check the California Community College Book Exchange to see if the textbook is already available in the requested media. The Book Exchange is a web page, developed by the staff at the High Tech Training Center Unit (HTCTU), which contains a listing of books available in alternate media. DSP&S staff, librarians, and ADA Coordinators can send e-mail requests to the registry to obtain books that have been produced in alternative formats by other colleges. The registry can be accessed at URL: http://bookex.htctu.fhda.edu. Other sources for braille and/or large print books are listed in Appendix II.

5. If E-text is already available or can be easily obtained, it may be a good alternative to large print or hardcopy braille. Producing the hardcopy braille or large print will take time and could be costly, especially for voluminous material. However, in order to ensure that E-text will provide an equally effective alternative, the following must be taken into account:

   (a) A partially sighted student will need a computer with software permitting print magnification.

   (b) A blind student who is a braille reader will need a computer or notetaker having a refreshable braille display. Assuming the student has such equipment, or the college makes it reasonably available, E-text probably would be an equally effective alternative to hardcopy braille, except in situations where spatial orientation or format is important, since such information is not readily conveyed by a refreshable braille display.

   (c) For simpler materials, or where format, punctuation, spelling, or technical detail are not crucial, a blind person may be able to use E-text with speech output as a substitute for braille. This may even be a better alternative if large volumes of information must be read quickly and the student will not be required to master or frequently refer to details in the text.

   (d) Many students with learning disabilities will benefit from using E-text with software which reads the text aloud while highlighting it on the screen.

   (e) In any case, the E-text will have to be free from errors and in a format compatible with the equipment being used to provide access.[11]

6. In some limited instances use of a reader or materials in a recorded audio format may be an equally effective alternative to either e-text or hardcopy braille or large print. Normally, this is only true where the material does not contain complex formatting (e.g. literature, history, business, etc.) and a general understanding of the material is sufficient. In such cases, audio may even be a superior format when compared to hardcopy braille, where large volumes of material must be covered quickly.

7. An audio recording generally will not be an equally effective alternative to E-text or hardcopy braille or large print when:

   (a) The material is complex or technical in nature.

[11] During fiscal year 2000-2001, the Chancellor's Office plans to purchase several notetakers with braille displays and house them at the HTCTU for loan to colleges with students who can benefit from their use.

(b) The student is expected to achieve detailed mastery of the information to complete a course or participate in a program or activity.

(c) The student is expected to quickly review material and provide an immediate response (e.g. review the material on page 57 and there will be a quiz in 10 minutes).

(d) The material must be used in class or as a frequent reference source outside class.

8. Providing an alternative that is not equally effective (e.g. a physics textbook on tape instead of in braille) can only be justified if the college makes a written determination that providing the requested accommodation would either:

(a) require a fundamental alteration in the nature of the class or other program or activity in which the individual is involved; or

(b) Impose undue financial or administrative burdens on the college.

I. EXAMPLES

Discussing a few examples may help to illustrate the recommended approach to handling requests for alternate media.

Example 1. A blind individual considering enrollment at the college requests the catalog and current schedule of classes in braille. Consistent with these guidelines, the college has these materials available in E-text form and offers this as an alternative. If the individual has a computer with access software/hardware, providing E-text would probably be considered an equally effective alternative and will most likely be accepted by the individual. However, if the individual does not have equipment necessary to use E-text, the braille version should be provided. In this case, allowing the person to use an electronic version on a computer at the college is probably not an equivalent accommodation because the person making the request is not yet a student and because other individuals have the option of having a catalog at home where they can refer to it frequently at their convenience. Providing the catalog in braille should not take long or involve significant additional expense if the college has already prepared the formatted braille file as suggested above.

Example 2. A member of the public using the college library requests large print versions of several novels. An effort should be made to ascertain whether large print versions of these books are available from the publisher, and if so, they should be obtained. If not, they may be available on tape and this option should

be offered to the patron. Failing this, the library would need to provide the equipment necessary for the individual to read the books with the needed magnification. This could be accomplished either through use of a CCTV or a scanner and computer with magnification software.

Example 3. A blind student taking a history course requests that both assigned textbooks be provided in braille. On further investigation, the faculty member advises that students are required to read both books, but only portions of one book will be used as the basis for testing in the class. Neither book is currently available in either braille or E-text, but they are available on tape. The college might appropriately offer to provide the taped versions and to scan and braille those portions of the one book on which the student will be tested.

Example 4. A blind student taking a geography course asks that the book be provided on audio tape, but wants maps and diagrams available in a tactile form. However, neither the taped book nor the tactile maps are readily available. The college should send the book to RFB&D for recording and, if the student is not a DR client, supply a reader to read the portions of the book which will be covered before the tapes are available. It should be possible to convert the maps and diagrams into tactile form using the Purdue University process discussed above. If this proves not to be technically feasible, the college could contract with an organization which does braille transcription and has the specialized capability to produce tactile maps.

Example 5. A student with a learning disability requests that the Career Center equip one of its computers with screen reading software and a speech synthesizer to enable her to more effectively access the Center's files containing information on career planning and employment opportunities. This is a reasonable request and should be granted, provided adaptive equipment can be obtained which is compatible with the hardware and software the Center uses. Indeed, if these guidelines are followed, the Center should already have one or more accessible workstations. If this is not the case, the adaptive equipment will need to be obtained and installed. In the interim, it may be necessary to provide the student with a reader or put material on disk so the student can access it using a computer at the High Tech Center.

Example 6. A blind student planning to pursue a mathematics degree at the University of California requests that several math textbooks for his transfer courses be provided in braille. The books are not currently available in braille and contracting to have them transcribed will cost several thousand dollars and take a few months. Assuming the student is a braille reader, there probably is no equally effective alternative to providing the texts in braille. Therefore, provided that the request is made enough in advance to make it practical, the college should arrange for the books to be transcribed.

Usually, it will be possible to arrange to have portions of the books shipped as soon as they are completed, but there may still be times when the student does not have a particular portion of the book in braille by the time it is covered in class. Under such circumstances, the next best alternative would probably be to obtain the needed portions of the book in E-text and offer to produce those portions in hardcopy braille using the college's in-house braille production capacity. In that case, it will be important to use software that can handle braille mathematics and have it carefully proofread by a knowledgeable individual. Alternatively, the college could provide the student with the E-text and access to a computer with a refreshable braille display. This probably would not be an equally effective alternative to having the book transcribed, but it might suffice as an interim measure while waiting for hardcopy braille to arrive. If the book cannot be obtained from the publisher in usable E-text format, then these latter alternatives may require scanning, proofreading, and correcting the text.

Example 7. A student in a psychology course is required to read several newspaper articles. She asks that the articles be provided in E-text so she can read them with her computer which has a speech synthesizer. More recent articles from many newspapers will already be available in E-text. If this is not the case, they can probably be scanned unless the print quality is too poor. If scanning proves impossible, the college could offer to put the material on tape. This would probably be an equally effective alternative unless the articles are to be frequently referenced in class or the student can provide a reasonable explanation why tape would not be adequate.

J. RESOLVING DISPUTES

The district policies on handling accommodation requests should set forth the procedure to be used when the student, the DSP&S or ADA coordinator, and the faculty do not all agree on the appropriate accommodation. Students should be advised of how to go about initiating this process if the student does not accept a proposal by the college to provide material in a format different than that originally requested. If the process provided in the accommodation policy still does not resolve the dispute, the individual should be advised of his/her right to file a discrimination complaint pursuant to Title 5, *California Code of Regulations*, Section 59300 et seq.

K. CONSIDERATIONS FOR FORMATTING E-TEXT AND DESIGNING SOFTWARE AND WEB PAGES

As discussed above, there are many advantages to the use of E-text, but to be useful as a method of providing accessibility, E-text must be appropriately formatted. The issues that need to be addressed in terms of formatting E-text will depend on the origin of the E-text itself.

1. **Considerations for Using ASCII Text Generated by a Scanner or From Another Outside Source**

When a printed page is scanned, the resulting electronic image can be saved in a variety of formats including ASCII text.[12] It is generally recommended that scanned documents be saved in the format which best preserves the "look and feel" of the original document. Although files saved in ASCII format may work well with screen reading programs, much of the formatting of the document will be lost. Depending on the nature of the document, this may or may not be a problem. For persons who are blind, some elements of page formatting such as page borders, different type sizes and fonts styles contribute little to document content. On the other hand, in some instances it may be important for the reader to know that information is presented in columns or that major headings are underlined. Such important information should be preserved in the finished document or manually restored when the scanned file is cleaned up to eliminate scanning errors.

Files in a variety of document formats, including ASCII text files, may also be obtained from other sources such as downloading from a website. In the interest of faster downloads, these files are sometimes "compressed" and must be decompressed with specialized software before the actual document file can be viewed.

File names that end with a "*.txt" have no specific word processor formatting. Extra carriage returns should be filtered out before using text in a word processor. The formatting should only contain a single carriage return at the end of each paragraph, none in the body of the paragraph, and no extra ones between paragraphs.

2. **Considerations When E-Text is Available in a More Sophisticated Format**

Sometimes E-text will be available in a common word processor format (e.g. Microsoft Word, WordPerfect, etc.). This is usually ideal as most modern screen reading programs can directly use such files without the need to convert the material to ASCII text. However, if a student does not have the necessary hardware and software to access such files, the college will need to convert the file to plain text (".txt") or make available a computer equipped to handle the word processing file format.

There are also a variety of proprietary file formats that cannot be used by screen reading software. For example, documents produced by many sophisticated page layout and design programs (i.e. FrameMaker, QuarkExpress, PageMaker) or documents saved in Portable Document Format (PDF), cannot be directly used with screen readers. In such cases, it will be necessary to convert the file into a

[12] Some newer scanners produce files in Portable Document Format (PDF). Unfortunately, as discussed below, PDF files are not directly accessible and must be converted to ASCII or some other usable format.

format that is accessible. [13] Where the screen reading software to be used will support a standard word processing file format (i.e. Microsoft Word), it will be preferable to convert to that format in order to preserve page formatting information. Of course, if conversion to a word processing format is not possible, or the screen reader cannot use such a file, then converting from the proprietary format directly to ASCII may be the only solution, despite the loss of format.

In either case, the key to conversion of E-text is maintaining the structural integrity of the instructional material, so that students with disabilities are afforded a quality learning experience. Maintaining structural integrity requires that the contents indices, and other structures are accessible and provide for fast and efficient reading and comprehension. If the file is converted from a non-accessible format, some formatting elements may be lost. If so, they will need to be restored manually.

3. Considerations for Complex Electronic Documents, Software, and/or Web Pages

Sometimes electronic text is embedded in web pages or software that also contains pictures, menu bars, hyperlinks, icons or other graphic symbols. In other cases, graphic elements, although not part of the text itself, may be incorporated in software in such a way that they must be used to navigate through the program to access the text file. Such graphical navigation elements can pose a barrier to access for persons who are blind. Screen readers cannot independently interpret graphical navigational elements unless such elements have been designed with text based alternatives.

The Chancellor's Office strongly recommends that, before purchasing new instructional media or software, colleges should confirm that the product is compatible with commonly available access equipment and software. If this is not the case, the college should purchase an alternative product that will provide accessibility, purchase the specialized equipment or software that will be necessary to make the product accessible, ask the vendor to modify the product, or be prepared to make such modifications itself. Where such materials will be developed in-house or through contractual arrangements, the college should ensure that newly developed software or electronic information resources are designed to be accessible.

Existing electronic instructional materials and software should be reviewed for accessibility and, where necessary, replaced or modified. This should be done as quickly as possible; but as noted above, the Chancellor's Office will expect that, at a minimum, it will be done when courses are reviewed every six years as part of the accreditation process.

[13] A "plug-in" is available to permit some PDF files to be read with a screen-reader. However, this may not work with more complex documents; and if the document is saved in ASCII, formatting will generally be lost.

The following information is intended to provide practical guidance about how to create accessible electronic documents, software or webpages and how to modify existing materials or webpages that may contain webpage design graphics or other elements that would interfere with access. Further information on this subject is also contained in Distance Education: Access Guidelines for Students with Disabilities, distributed by the Chancellor's Office in August 1999.

4. Considerations for Designing Software for Use by Persons Who are Blind

Increasing the compatibility of standardized software for use with screen reading programs used by blind persons requires some modifications, such as:

i using "Alt Tags" or alternative text to identify images used as submit buttons, bullets in lists, image maps or invisible images used to lay out a page. Alternative text does not describe the visual appearance of an image. Rather, it is used to represent the function that the image performs whether it be decorative, informative, or for purposes of layout. If alternative text is not provided, users who are blind, have low vision, or any user who cannot or has chosen not to view graphics will not know the purpose of the visual components on the page.

ii using a special technique to make the text known to screen reading software if text is embedded in a graphic image. Provide a long description of all graphics that convey important information.

iii using dragging system cursors (even if invisible) for highlighting or focusing techniques.

iv using consistent or predictable screen and dialog layouts.

v eliminating popup help balloons that disappear when the focus changes unless there is a way to lock them in place so that the focus (e.g. cursor) can be moved to read them.

vi using single column text whenever possible.

vii using logical names for controls, even if the name is not visible on screen (screen readers can access this information and use it to describe the type and function of the control on the screen).

viii using keyboard access to all tools, menus, and dialog boxes.

ix providing a draft mode, zoom, and wrap to window features.

x Since screen readers can only read text (or give names to separately identifiable icons or tools) it is a good idea to:

xi avoid unlabeled "hot spots" on pictures as a control scheme (unless redundant with menu selection).

xii avoid non-text menu items when possible or incorporate cues -- visible or invisible (screen readers can 'see' text that is written to screen in an invisible color).

xiii avoid non-redundant graphic tool bars if possible.

xiv avoid conveying important information by color alone, or make it optional. Use only colors that the user can customize, ideally through Control Panel. Use colors in their proper foreground/background combinations, unless doing so would interfere with the student's ability to distinguish the information properly (e.g. color blindness).

xv omit background images drawn behind text.

xvi make applications compatible with system settings for sizes and fonts. Avoid hard coding font sizes smaller than 10 points.

xvii provide supplemental information needed to pronounce or interpret abbreviated or foreign text. Unless changes between multiple languages on the same page are identified, and expansions for abbreviations and acronyms are provided, they may be indecipherable when spoken or brailled. For abbreviations and acronyms use either ABBR or ACRONYM with the "title" attribute to specify the expansion.

There are a number of considerations that are aimed at increasing accessibility for screen readers, such as:

i designing all documentation and on-line help so that it can be understood by reading the text only (e.g. information presented in pictures and graphics is also presented with a description in text).

ii ensuring that all messages and alerts stay on screen until they are dismissed.

iii writing language in a manner which is as straightforward as possible, both on screen and in the documentation.

iv devising simple and consistent screen layouts that are predictable. Wherever possible, follow system standards and style guides. This makes it easier for people with cognitive disabilities to predict and understand how things should operate and what they mean. For people who are blind and use screen readers to find out what is on the screen, predictable

layouts and controls are easier to figure out. Also, adaptive software manufacturers can build techniques into their software to handle the standard objects and appearances, but not unique or one of a kind implementations. Structure, label, and group information. Tables also present special problems to users of screen readers. Provide summaries for tables. Identify headers for rows and columns. Where tables have structural divisions beyond those implicit in the rows and columns, use appropriate markup to identify those divisions. Provide abbreviations for header labels.

v ensuring that all the information on the page may be perceived entirely visually and entirely through auditory means, and that all information is also available in text.

5. Considerations for Design of Documents/Software for use by Persons with Low Vision

Students with low vision may experience a variety of situations that affect their vision ranging from poor acuity (blurred or fogged vision) to loss of all central vision (only see with edges of their eyes) to tunnel vision (like looking through a tube or soda straw) to loss of vision in different parts of their visual field, as well as other problems (glare, night blindness, etc.).

For students with low vision, a common way to access the information on the screen is to enlarge or otherwise enhance the current area of focus.

Direct accessibility of software applications for students with low vision may be increased by:

i allowing the user to adjust the fonts, colors, and cursors used in the program to make them more visible.

ii using a high contrast between text and background.

iii avoiding the placement of text over a patterned background where the two might interfere with each other.

iv using a consistent or predictable layout for screens and dialogs within the program.

v providing access to tools, etc., via menu bar.

vi using recommended line width information when drawing lines (if such information is provided by the system).

vii using the system pointers wherever possible, as well as the system caret or insertion bar if one is available.

6. Considerations for Formatting E-text to Produce Hardcopy Large Print

Large print documents printed from electronic files should be produced using a font size of 14 point (or larger) and sans serif type faces such as Helvetica for visual clarity. Documents should be reformatted as necessary to preserve critical page layout elements. All colors should be set for maximum print contrast. Further information about formatting large print documents is provided in Appendix III.

Part II

GUIDELINES FOR IMPLEMENTATION OF ASSEMBLY BILL 422

A. SCOPE AND PURPOSE

As noted in the preface to these guidelines, Assembly Bill 422 (Stats. 1999, ch. 379), added Section 67302 to the *California Education Code* requiring that publishers of certain instructional materials provide electronic versions of those materials to community colleges so that students attending the college may have access to the materials in alternate media. (See Appendix VI for the full text of AB 422.)

The bill requires the Chancellor's Office to adopt guidelines for implementation of its provisions. Those guidelines are set forth below.

The Chancellor's Office is seeking funding for the 2000-2001 fiscal year to establish a single statewide center to handle requests for electronic versions of instructional materials under AB 422 and their conversion into alternate media for students throughout the system. However, there is no guarantee that such funding will be forthcoming from the state and, even if it is, the statewide center would probably not be operational until the middle of 2001 at the earliest. Thus, the purpose of these guidelines is to provide interim guidance to colleges about how to take advantage of the AB 422 process until a statewide center is established.

B. BASIC COVERAGE AND LIMITATIONS OF AB 422

AB 422 applies only to:

1. Textbooks and other materials written and published primarily for use by students in postsecondary instruction; and

2. Which are required or essential to a student's success; and

3. Are to be used by a student with a disability in a course in which the student is enrolled at the college.

Put another way, AB 422 does not require publishers to provide electronic versions of materials which are published for a general audience, even though they may be of use to students. Such materials might include dictionaries, encyclopedias, professional journals, and other reference works used extensively outside of higher education.

Moreover, even if a particular work is published primarily for use by students in postsecondary education, it may not be available in electronic form under AB 422 if it is not required or essential for the participation of a student with a disability in a college course. For example, if an instructor designates a textbook as "optional background reading," then the publisher would not be obliged to provide it in electronic form under AB 422. Guidelines for determining which materials are "required or essential" are provided in Section F.

AB 422 may also be of only limited value in terms of obtaining electronic versions of mathematics and science materials or "nonprinted instructional materials." The limitations on availability of these specialized materials are discussed in Sections H and I below.

Finally, it is important to keep in mind that, even when it applies, AB 422 only obliges a publisher to provide electronic text to the college. It remains the college's responsibility to provide instructional materials in an alternate media appropriate to the needs of the student. For example, if the student requests a book in braille, and it is determined that this is appropriate (pursuant to the guidelines in Part I), the college will then need to use a braille translation program to convert the electronic text supplied by the publisher into braille or arrange with an outside contractor to do this work.

C. ALTERNATE MEDIA CENTERS

Subsection (a) of *California Education Code*, Section 67302 provides that, subject to the limitations discussed above, publishers shall, upon request, provide electronic versions of printed instructional materials to the University of California, the California State University, or any community college in California. Thus, the basic structure of the law contemplates that each publisher will deal directly with individual colleges. However, at the request of the publishing industry, language was added in subdivision (g) permitting each of the systemwide offices to designate one or more "centers" to process requests for electronic versions of instructional materials pursuant to AB 422. As discussed above, the Chancellor's Office is in the process of seeking the funding necessary to establish a single statewide center to handle all such requests.

In the meantime, each college may directly contact publishers and make requests for E-text pursuant to AB 422. Although it is not required, multi-college districts may establish an alternate media center at the district office or at one of the colleges in the district to handle requests for electronic text on behalf of students attending all colleges in the district. Similarly, two or more districts may, by written mutual agreement, establish a single alternate media center to handle requests for electronic text on behalf of all students attending colleges in districts participating in the agreement. Such centers must be designated by the Chancellor's Office, so prior to requesting electronic text from any publisher, the district or districts must advise the Chancellor's Office of the area to be

served by the center and the name of the person who will serve as the liaison with publishers.

However, before considering designation as an alternate media center, a college or district should understand the additional obligations it will be assuming. *California Education Code*, Section 67302(g) makes clear that, once a center is established, publishers are only required to honor requests which come through the center. As a result, the law specifies three basic responsibilities such a center must perform:

1. The colleges designated as within the jurisdiction of a center shall submit requests for electronic versions of instructional materials to the center which shall transmit the request to the publisher or manufacturer of the instructional material.

2. Each center shall make every effort to coordinate requests with other centers. To this end, each center should check the Book Exchange on the HTCTU website before submitting a request to a publisher to determine whether the instructional material is already available in electronic form from another center. Also, each center should post on the Book Exchange a description of all instructional materials the center has in its library of electronic texts, whether obtained from publishers or created in-house.

3. Once a publisher or manufacturer has responded to a request for instructional materials by a center, all subsequent requests for these instructional materials from a college served by the center shall be satisfied by that center. This means that the center will have the responsibility for maintaining an E-text library, duplicating requested materials, and delivering copies in a timely manner. To accomplish this, the center will need the capacity for high speed duplication of CD-ROMs. This is a practical necessity since the electronic versions of most textbooks or other instructional materials will be far too large to be stored on a floppy disk.

While the law and these guidelines allow for the establishment of such centers, the Chancellor's Office anticipates that it will be simpler for most colleges to contact publishers directly until the statewide center is established. The remainder of these guidelines are written based on this assumption, but colleges or districts interested in the possibility of serving as an alternate media center may contact the Statewide Coordinator of the DSP&S Unit in the Chancellor's Office, for more detailed information. The form which must be completed to request designation as an alternate media center is provided in Appendix X.

D. CERTIFICATION OF REQUESTS

AB 422 provides that publishers are only required to supply electronic versions of instructional materials in response to a written request which is signed by the DSP&S

Coordinator or the ADA Coordinator certifying that certain conditions have been satisfied.[14] Those conditions include:

1. E-text is needed in order to provide instructional materials in alternate media for a student with a verified disability that prevents him or her from using standard instructional materials;

2. The student is/plans to be enrolled or registered for a course at the college;

3. The instructional material is required or essential to the student's success in the course; and

4. The standard instructional material has been purchased by the student or on behalf of the student by the college.[15] [16]

E. SECURITY OF E-TEXT

The above conditions apply to all requests for E-text from publishers under AB 422. However, some additional conditions are applicable in instances where the college will be providing the student with direct access to the E-text, as opposed to using it to produce secondary alternate media in braille or large print that will be given to the student. In such cases, Section 67302(c) requires that "the disk or file shall be copy-protected or the college or university shall take other reasonable precautions to ensure that students do not copy or distribute electronic versions of instructional materials in violation of the Copyright Revisions Act of 1976, as amended (17 U.S.C. § 101 et seq.)." (See Appendix V for a discussion of the relevant provisions of the Copyright Act.)

At this time, the Chancellor's Office is not aware of any method for copy-protecting files or disks that will permit their continued use with screen readers or braille translation software. Unless and until such a system is available, each college should develop policies providing for sanctions to be imposed on students who improperly distribute electronic versions of copyrighted materials. Such policies could be incorporated in the student code of conduct and include penalties similar to those imposed for cheating or plagiarism. Another approach would be to cover this issue in the policy developed pursuant to Title 5, *California Code of Regulations*, Section 56010 permitting suspension

[14] Of course, other staff may gather and evaluate the information necessary to prepare the certification document. The law requires only that it be signed by the ADA or DSP&S Coordinator.

[15] Ordinarily, textbooks and most instructional materials will have been purchased by the student. However, the statute also covers situations where the college purchases instructional materials for use by students. The underlying concept is that, since the bill requires E-text to be provided at no additional charge, the publisher is entitled to ensure that a standard copy of the instructional material was purchased by someone.

[16] In order to facilitate processing requests in advance of the beginning of a class, it may sometimes be necessary for the college to complete the certification before print books are available for purchase in the bookstore. In such cases, the Chancellor's Office recommends that the college require the student to place an order for the book before completing the certification. Then, before providing the student with the book in alternate media, the college should verify that the purchase was actually completed.

of DSP&S services to students who misuse such services. For example, such a policy might provide that a student who improperly copies E-text will be required to use it under supervision on a computer at the college, and that repeated violations will result in denying future requests for access to E-text for one year. Students must be provided with a copy of such policies when they first apply for DSP&S services and it would be advisable to again bring the provision regarding copying of E-text to the student's attention when such files are provided.

In addition, AB 422 permits a publisher to insist that a student who will directly use E-text must sign an agreement stipulating that the E-text will be used solely for his or her own educational purposes, and that s/he will not copy or duplicate the instructional material for use by others. Although the law does not require such an agreement unless the publisher so desires, colleges are encouraged to make such an agreement a standard part of the procedures to be used in cases where students are given direct access to E-text.

There are also some measures each college should take to safeguard E-text in its possession. All colleges should maintain an inventory of E-text files received from publishers. Special precautions should be taken to ensure the electronic media is stored in a safe and secure area. A regular back-up protocol and schedule needs to be devised, and at least two staff should have access to and knowledge of the process and procedures related to electronic text instructional materials. Proper means of information security should be developed which prohibit unauthorized access, modification, or misuse of the electronic text.

F. DETERMINING WHICH MATERIALS ARE REQUIRED OR ESSENTIAL

As discussed above, AB 422 only obligates publishers to provide electronic versions of instructional materials which are deemed to be "required or essential" for the student's success in the course in which he or she is enrolled.[17] The statute provides that the determination of which materials are required or essential to the student's success is to be made by the instructor of the course in consultation with the DSP&S coordinator or ADA Coordinator who will certify the request. Although the law does not so require, it would also be appropriate to discuss this issue with the student. The following points should be considered in making this determination:

[17] It is the opinion of the Chancellor's Office that this requirement does not apply to subsequent requests for use of E-text previously supplied by a publisher. In other words, if a college has previously obtained the electronic version of an instructional material from a publisher, when subsequent requests are made for copies of that file, it is not necessary to establish that the material is required or essential for the student who will now be using the E-text. All other requirements would still apply--the student must be enrolled in a course, have a disability which prevents using the standard instructional material, and the material must have been purchased by or on behalf of the student.

Of course, there may be some question as to whether the college is obligated to provide material in alternate media when the material is not required or essential for success in a course. For example, even though an E-text file is available, producing the material in braille might be unduly difficult or expensive and the college might offer access to the E-text as an alternative accommodation in a case where the material was not required or essential for student success. The guidelines in Part I should be consulted in analyzing specific accommodation requests.

1. Is the material in question listed as "required" in the course syllabus, Outline of Record, or other curriculum documents? If so, this will generally be conclusive. However, even where this isn't the case, materials may be effectively required or essential in the situations discussed below.

2. Will the student realistically need to use the instructional material in the completion of course assignments which are used to evaluate the student (i.e. to determine the student's proficiency level or assign a grade)?

3. Would it be difficult or impossible for the student to achieve his or her educational objectives without access to the particular instructional material? For example, if a student expects to major in a subject or transfer to a four-year institution in that field, he or she may need to do more than what is minimally necessary to pass a class. In such circumstances, the use of the instructional material may not be critical for every student, but it would be required or essential in order for the particular student to gain the needed experience from the course.

G. FILE FORMATS

Upon receipt of a request containing the certification discussed in Section E, AB 422 requires a publisher to supply the electronic version of an instructional material at no additional cost and in a timely manner. The statute specifies that it must be provided "in an electronic format mutually agreed upon by the publisher or manufacturer and the college or campus. Computer files or electronic versions of printed instructional materials shall maintain the structural integrity of the printed instructional material, be compatible with commonly used braille translation and speech synthesis software, and include corrections and revisions as may be necessary." (Cal. Ed. Code, § 67302(a).)

Many publishers use popular desktop publishing programs such as Quark Express or Page Maker to prepare text for printing. The files created by these programs cannot be used with braille translation or screen reading software. Efforts are currently underway to develop software that will allow conversion of desktop publishing files into new file formats such as Open E-book or XML which could, in turn, be converted to a format that will work with braille translation or screen reading software while largely retaining the format and structure of the original file. However, at present, this conversion process has not been perfected nor has a single format emerged as the standard for electronic text.

However, most of the desktop publishing programs used by publishers will permit saving files in Microsoft Word or Rich Text format. This format will generally satisfy the requirements of the law. Many screen reading programs, braille displays, and braille translation programs can access Microsoft Word or Rich Text files, and such files will maintain many (although not all) formatting elements created in desktop publishing programs. Moreover, most other word processors will recognize Microsoft Word files,

so such files should be usable even if a particular student will be using WordPerfect or some other word processing program.

Thus, until a better alternative is developed and readily available, the Chancellor's Office recommends that colleges begin discussions with publishers by requesting files in Microsoft Word or Rich Text format. There may, however, be circumstances where this will not completely resolve the matter. Some publishers may use proprietary software that will not produce files in Microsoft Word or Rich Text format. In other instances, the format and structure of the particular document may be such that conversion to one of these formats will not preserve the "structural integrity" of the printed document. Section 67302(e)(4) states that the term:

> "'Structural integrity' means all of the printed instructional material, including, but not limited to, the text of the material, sidebars, the table of contents, chapter headings and subheadings, footnotes, indexes, glossaries, and bibliographies. 'Structural integrity' need not include nontextual elements such as pictures, illustrations, graphs, or charts."

Sometimes a simple conversion of the publisher's file to Microsoft Word or Rich Text will not produce an accessible file which retains all of the enumerated elements of the structural integrity of the original. In such cases, the college and the publisher should attempt to identify and agree upon some alternative format that will maintain the structural integrity of the printed document and still be usable with screen reading and/or braille translation software. If that is not possible, it may be necessary to require the publisher to convert the file to Microsoft Word or another usable format and then modify the converted file to reconstruct or simulate the structural elements that were lost or garbled. *California Education Code*, Section 67302(a) clearly contemplates that this may be required when it says that the file provided by the publisher must "maintain the structural integrity of the printed instructional material, be compatible with commonly used braille translation and speech synthesis software, and *include corrections and revisions as may be necessary.*" (Emphasis added.)

Finally, AB 422 provides a "default option" in case the publisher and the college cannot agree on an appropriate file format. *California Education Code*, Section 67302(e)(4) provides that:

> "If good faith efforts fail to produce an agreement pursuant to subdivision (a) between the publisher or manufacturer and the university, college, or particular campus of the university or college, as to an electronic format that will preserve the structural integrity of the printed instructional material, the publisher or manufacturer shall provide the instructional material in ASCII text and shall preserve as much of the structural integrity of the printed instructional material as possible."

As discussed in Part I of these guidelines, there are significant limitations on the formatting that can be provided by ASCII text. Thus, it will usually be desirable for the

college to make every effort to work out an agreement with the publisher that will avoid the necessity of relying on the default option. However, the law does guarantee the availability of ASCII text (enhanced to preserve as much as possible of the structural integrity of the original), and there may be situations in which this is the best approach to providing access for the student.

H. MATHEMATICS AND SCIENCE MATERIALS

AB 422 contains two provisions which exempt publishers from having to provide electronic versions of certain types of instructional materials. One such exemption is provided by *California Education Code*, Section 67302(e)(1), which excludes from the definition of instructional materials "nontextual mathematics and science materials until the time software becomes commercially available that permits the conversion of existing electronic files of the materials into a format that is compatible with braille translation software or alternative media for students with disabilities." A careful reading of this provision reveals two important points about the scope of the exemption:

First, the exemption is time limited and dependent on the state of technology. It is the opinion of the Chancellor's Office that the exemption does not apply to any material which can be successfully converted to Microsoft Word or other commonly available word processing formats. Since such files can be used with screen reading programs and/or refreshable braille displays, technology already exists today to permit converting such materials into alternate media. Of course, whether such a conversion is possible will depend on the nature of the material and will have to be determined on a case by case basis.

Second, the exemption applies only to "nontextual" mathematics and science materials. This refers to graphs, charts, equations, diagrams, and other similar graphic elements. The exemption does not extend to the textual portions of math and science texts wherein the concepts to be taught are described in narrative form. Thus, a college could ask a publisher to provide the textual portions of a math book and then the file provided by the publisher could be edited to add in the nontextual portions that could not be directly converted. Obviously, there will be many cases where this is impractical because the nontextual elements are extensive or scattered throughout the book. However, this may be a viable option for materials that are predominantly textual in nature.

I. NONPRINTED INSTRUCTIONAL MATERIALS

The other similar exemption in AB 422 applies to "nonprinted instructional materials." These are defined to mean "instructional materials in formats other than print, and includes instructional materials that require the availability of electronic equipment in order to be used as a learning resource, including, but not necessarily limited to, software programs, video disks, and video and audio tapes." (Cal. Ed. Code, § 67302(e)(3).) Publishers are not required to comply with AB 422 with respect to nonprinted

instructional materials until technology is available to convert these nonprinted instructional materials to a format that maintains the structural integrity of the nonprinted instructional materials and is compatible with braille translation and speech synthesis software. (Cal. Ed. Code, § 67302(d).)

Of course, some nonprinted instructional materials, such as video tapes or software that uses computer graphics, are inherently visual in nature and, at the present time, there is no way to convert these materials into a format that would be compatible with speech or braille translation software.[18] However, some other types of materials, such as reference works on CD-ROM, may be largely textual in nature even though they are produced and distributed in electronic form, in addition to, or instead of being printed. In such cases, it may be possible for the college and the publisher to identify a way to convert all or part of the instructional material into a file format that can be used with screen reading or braille translation software.

J. REVISING FILES RECEIVED FROM A PUBLISHER

For the reasons discussed above, it should be clear that there may be many situations in which a college will not be able to fully discharge its obligations under the law by simply passing on the file received from the publisher. If too much of the structural integrity of the original document has been lost, the E-text (or braille or large print produced from it) may be unusable or deficient. Should this occur, despite the best efforts of the college to obtain usable files from the publisher, the college will have to take steps to ensure that the student receives a usable version of the document. This may necessitate human intervention to reconstruct or simulate elements missing from the file. In some cases, it may even be necessary to scan all or part of the document and use the scanned text to supplement the file provided by the publisher.

Again, the point is that the college has an obligation under federal and state law to make instructional materials available in alternate media. AB 422 may make it possible, in some cases, to obtain E-text that will allow the college to quickly and easily discharge its responsibility. But, where that isn't the case, the college will have to do whatever is necessary to produce the document in usable alternate media.

K. RECOMMENDED PROCESS FOR HANDLING REQUESTS

The following is a suggested step-by-step approach to handling a request from a student that requires obtaining E-text from a publisher pursuant to AB 422. Colleges are not required to follow the precise details of this process, provided the basic requirements of the law are satisfied.

[18] There is a technique, known as descriptive video, which can provide access to video tapes for individuals with visual impediments. the tape is copied and a narration track is added on which a narrator describes visual scenes during natural pauses in the dialog. Publishers are not required to provide this service under AB 422, but colleges can and should contract with an appropriate commercial service to have video tapes narrated.

1. The bookstore manager sends a letter to all publishers [19]advising them of the requirements of AB 422 and indicating that they should expect to receive such requests directly from either the DSP&S coordinator or the ADA Coordinator. (See Appendix VII for a sample letter.) The bookstore also includes in book purchase contracts with publishers a provision requiring electronic text to be available on request. [20]

2. Using appropriate college procedures, a student requests that instructional materials be made available in alternate media.

3. The DSP&S (or ADA Coordinator) determines that E-text is the appropriate medium for use by the student or that E-text will be needed to produce materials in the appropriate medium (e.g. braille or large print). If so, the student is asked to provide information necessary to satisfy the requirements of AB 422--that the student has a disability which prevents using standard instructional materials, that the student is or will be registered/enrolled in a course at the college, that the student has ordered/purchased the instructional material or it is being otherwise purchased, and that the instructor of the course has determined that the instructional material in question is required or essential to the successful completion of the course. [21] A suggested form for collecting necessary information from the student is provided in Appendix VIII.

4. The DSP&S (or ADA Coordinator) determines whether the instructional material is already available through the HTCTU Book Exchange or from some other source. If so, the source is contacted and a copy is obtained.

5. If it will be necessary to obtain the E-text from the publisher, the DSP&S or ADA Coordinator completes the certification required by AB 422 and forwards it to the publisher. (See Appendix IX for a suggested form.)

6. DSP&S (or the ADA Coordinator) works with the publisher to agree upon a format for the E-text which will be compatible with screen reading or braille

[19] The Chancellor's Office will contact major publishers of instructional materials and request that each publisher designate statewide or regional representatives to whom requests should be directed. Such contact information as is provided by publishers will be placed in a database accessible through the HTCTU website (http://htctu.fhda.edu).

[20] This is not required by AB 422, but colleges would have discretion to require such a provision if they wish. This may be most appropriate where the bookstore is ordering relatively large numbers of commonly used books or materials. Such a provision might read as follows: "In accepting this order, (name of publisher) agrees that it will provide, upon request, an electronic version of the material being purchased for use in accommodating the needs of students with disabilities consistent with the requirements of California Education Code Section 67302."

[21] As discussed above, it is the view of the Chancellor's Office that the "required or essential" test need only be satisfied when the electronic version of an instructional material is first requested from the publisher. Thus, some requests could be processed without this information, but it is suggested that it be collected at this stage of the process to avoid further delay in those cases where it is required.

translation software and maintain the structural integrity of the instructional material. [22]

7. DSP&S (or the ADA Coordinator) arranges for the E-text to be provided to the student or for production of secondary alternate media, if necessary. If E-text is given directly to the student, the student is required to sign an agreement prohibiting duplication of the material and the student is advised of the consequences of violating said agreement. Suggested wording for such an agreement is included on the sample form provided in Appendix VIII.

8. DSP&S (or the ADA Coordinator) arranges for storing a master copy of the E-text and posts a description of the material on the HTCTU Book Exchange website.

L. ENCOURAGING PUBLISHERS TO ENHANCE ACCESSIBILITY

In addition to satisfying specific requests, it is recommended that each college establish an ongoing relationship with major publishers to encourage the publishers to work toward enhancing the accessibility of their products. To this end, the college should:

1. Ensure that publishers and manufacturers of the printed instructional material are aware of disability access issues and are informed that their products are frequently used by students with disabilities. The sample letter set forth in Appendix VII is intended to accomplish this purpose.

2. Work with the publisher to identify specific product support people who are knowledgeable about making instructional materials accessible or who will be assigned to acquire training in this area. As discussed in footnote 18, the Chancellor's Office will ask major publishers to designate statewide or regional representatives to receive requests pursuant to AB 422. These individuals may not be able to deal with all access issues, but they should be able to identify those individuals within the publisher's organization who can.

3. Notify the publisher of any issues that are discovered to create difficulties with screen readers or braille translation software.

4. Encourage the publisher to have product designers address accessibility problems in the design of future instructional materials.

[22] If the college is served by an alternate media center located at the district office or another college, the request would be forwarded through that center. However, for the purposes of this illustrative step-by-step process, we assume each college will be interacting directly with publishers until the statewide center is established.

Appendix I

Alternate Media Committee Members

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Dr. Catherine Campisi, former Dean of Student Services with the Chancellor's Office, left the agency in December 1999 to accept an appointment as Director of the California Department of Rehabilitation. Although she is no longer with the Chancellor's Office, she contributed significantly to the work of the Task force and the development of these guidelines.

Appendix II

Alternate Media Resources

Braille Resources

Dozens of commercial braille production companies are available to colleges wishing to outsource. Many of the resources have Web addresses and accept electronic submission of materials to be brailled. Prices, production times and quality vary.

National Braille Press
88 St. Stephen Street
Boston, MA 02115
Phone: (617) 266-6160
Toll-free: (800) 548-7323
Fax: (617) 437-0456
http://www.nbp.org/

The American Printing House for the Blind, Inc.
1839 Frankfort Avenue
Mailing Address: P.O. Box 6085
Louisville, Kentucky 40206-0085
U.S.A.
Phone: (502)-895-2405
Toll Free Customer Service: (800)-223-1839 (U.S. and Canada)
Fax: (502)-899-2274
http://www.aph.org/contact.htm

Braille Institute
741 N. Vermont Avenue
Los Angeles, CA 90029
(323) 663-1111
FAX: (323) 663-0867
http://www.brailleinstitute.org/Press.html

Educational Transcription Center (ETC)
Ventura College
4667 Telegraph Road
Ventura, CA 93003
(805) 648-8927
http://www.etcbrille.org

Braille Transcribers
http://www.spedex.com/directories/braille.htm

Braille Jymico Inc.
http://www.braillejymico.qc.ca/products.htm

NMSU List of Braille Transcription Resources
http://www.nmsu.edu/Resources_References/access/public_html/trans.html

Quik-Scrybe
http://www.quikscrybe.com/

Large Print Resources

Braille Institute
Los Angeles Sight Center (323) 663-1111
Desert Center (760) 321-1111
San Diego Center (619) 452-1111
Santa Barbara Center (805) 682-6222
Orange County Center (714) 821-5000
Youth Center (213) 851-5695
http://www.brailleinstitute.org

Library Reproduction Service (LRS) -1 (800) 225-5002
lrsprint@aol.com

American Printing House for the Blind (502) 895-2405
"LOUIS" Database search resource for braille, large print,
sound recordings, audio, and computer
www.alph.org

Other Alternate Media Resources

California Community Colleges Alternate Media Book Exchange

The Book Exchange is a web page, developed by the staff at the High Tech Training Center Unit (HTCTU), which contains a listing of books available in alternate media. DSP&S staff,

librarians, and ADA Coordinators can send e-mail requests to the registry to obtain books that have been produced in alternative formats by other colleges. The registry can be accessed at: http://bookex.htctu.fhda.edu.

Recording for the Blind and Dyslexic (RFB&D)
RFBD is a national non-profit organization that serves as the nation's educational library for people that cannot effectively read standard print because of a visual, perceptual, or physical disability. Information is provided in recorded and computerized formats at every academic level.
http://www.rfbd.org

TAEVIS Online, Purdue University
TAEVIS Online is an electronic library containing tactile diagrams. These diagrams, redrawn to tactile specifications are created from college-level course material and can be used to transmit visual information such as that found in graphs, chemical structures, and biological drawings.
http://www.taevisonline.purdue.edu

American Thermoform Corporation
2311 Travers Avenue
City of commerce
Ca. 90040
(800) 331-3676
(213) 728-8877 (fax)
American Thermoform Corp. is a major California-based supplier of braille paper and related supplies. Braille paper is available in various widths and in weights suitable for both draft and final documents.
http://www.atcbrleqp.com

HTCTU Book Exchange (De Anza Community College)
http://htcoff1.htctu.fhda.edu/tango/bookex/bookex.html

Organizations Involved in the Development of Alternate Media Standards

DAISY
The DAISY Consortium is the worldwide coalition of libraries and institutions serving print disabled persons, developing the open standards, tools, and techniques for the next generation of "digital talking books"
http://www.daisy.org

CAST
CAST is a not-for-profit organization whose mission is to expand opportunities for individuals with disabilities through the development of and innovative uses of technology. CAST pursues this mission through research, product development, and work in schools and educational settings that further universal design for learning.
http://www.cast.org

Appendix III

BRAILLE INSTITUTE
EDUCATION AND AWARENESS

A Guide To Large Print For People With Low Vision

Many people with visual impairments beyond those correctable by prescription lenses still read, often with the assistance of special aids such as lighting or magnification devices. People with reduced sight often find that conventional print appears blurred, dim and very difficult, if not impossible, to read. Central damage to the retina, for example, prevents some people from seeing small print clearly and reduces their ability to move their eyes in the ways needed for reading. Text can be made more legible for some of these readers through the use of large print. There are many factors to consider when producing large-print material, and it is important to note that the variety of visual impairment and subsequent impact on the ability to read is extensive.

CONTRAST: Text should be printed with the highest possible contrast. **Use of boldface type generally provides greater legibility, as the letters are darker and thicker**. Black or dark blue inks are preferable to lighter colors. Color backgrounds generally should be avoided, although some studies suggest that black ink on a bright yellow background is easy to read. Buff, cream or light yellow backgrounds usually are acceptable, but not dark or bright color backgrounds. Some visually impaired people are unable to distinguish type at all with black ink on a dark red background.

REVERSE type "white" type on a dark background-improves readability for some. Reverse type often is an available option with some computers and special closed-circuit cameras used for reading, and might be good for some signs or other items with limited text. Backgrounds should be solid.

SIZE: Type often is measured in points and should be as large as practical.
Text should be 14 points or larger, preferably 18 points.
Headlines should be at least 24 points, larger if possible.

LEADING: The spacing between lines of text, called leading, should be greater than that traditionally used in regular text. Many people with low vision have difficulty finding

the beginning of the next line when reading if the lines of type are too close together. A ratio of 150 percent (12-point type receives 18-point leading) is a good guideline for text.

STYLE: An ordinary typeface, such as this one (Helvetica), a sans-serif font (one without the fine lines projecting from the main strokes of letters found on some fonts, such as Palatino or Times, usually is the best choice for large print. Other styles of type frequently used in regular print are not easily read by people with low vision. These include ALL CAPS, SMALL CAPS, *italics* and ornate, decorative fonts like this. Text should be in Upper and Lower Case, with wider spacing between lines, for maximum readability.

LETTER SPACING: The spacing (track) between individual letters on each line should be wider than usual whenever possible. Text with close letter spacing is particularly difficult for partially sighted readers who have central visual field defects.

MARGINS: Extra-wide binding margins are very helpful in large-print books and other bound material because they make the volumes easier to hold flat. Many visual aids, such as stand and video magnifiers, are easier to use on a flat surface.

PAPER: Paper with a glossy finish can interfere with legibility because it tends to catch and reflect the glare of lights in a room. Glare is a common problem for many readers who are partially sighted. Print on paper with a matte (dull) finish whenever possible. Those wishing to use recycled paper will find a good selection of paper stock. Ink type—petroleum-based versus soy-based—is not a factor.

ALIGNMENT of text, hyphenation of words and other factors can slow a reader who is visually impaired and are worth considering when producing materials for this audience. Text created "flush left" is easiest to read. Paragraphs indented too far (.125 inches is a suggested maximum) might be replaced by paragraphs with extra space between them.

Text that is centered is harder to follow because
the reader must search for the start of each line.

Text created "flush right" also is a potential problem.

Text that is "justified" appears to create no special problems, although many computer programs typically compact some type when this alignment is used, which can reduce the readability. Justified type also uses a lot of hyphenation, which can slow the reading process for someone who is visually impaired to a greater degree than it does for sighted readers.

When producing large-print materials for people with reduced sight, keep the above principles in mind and your readers will be able to make full use of their remaining vision.

Los Angeles Sight Center (213) 663-1111•Desert Center (760) 321-1111
San Diego Center (619) 452-1111•Santa Barbara Center (805) 682-6222
Orange County Center (714) 821-5000•Youth Center (213) 851-5695
www. brailleinstitute.org

Appendix IV

FORMATTING BRAILLE DOCUMENTS

Today, most braille is produced using braille translation software to convert E-text into a format that can be printed with a braille printer. For documents involving primarily straight text (those that do not include mathematics, foreign language, computer code, etc.), these programs will generally produce an accurate word-for-word translation, but the formatting of the document will almost always require human intervention.[23]

The Library of Congress establishes standards for braille transcription and certifies transcribers. It is recommended that, whenever possible, colleges hire or contract with certified braille transcribers, or organizations which employ such transcribers, to produce braille materials. However, a person well versed in the rules for formatting braille and the use of a translation program may be able to produce reasonably good quality braille documents even without Library of Congress certification. The guidelines set forth below are by no means a thorough treatment of the subject and following them will not eliminate the need for proper training. However, they should help college staff avoid some of the more obvious pitfalls of braille production.[24]

1. Contractions

Braille only has one set of letters. By itself, a braille letter is assumed to be in lower case. To show an uppercase letter, put the capitalization indicator (dot 6) in front of a braille letter. To show an uppercase word, you put two capitalization indicators in front of the word.

The number sign (used to indicate an occasional number in a text document[25]) is dots 3-4-5-6. This symbol comes just before the number.

An important thing to realize about braille is that you cannot write the dot patterns smaller or larger. An 11-1/2 by 11 inch piece of braille paper contains about 900 braille cells. This cause braille volumes to be much bulkier than inkprint.

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[23] As noted earlier, there are special braille codes for mathematics, musical notation, computer code, etc. There are even some computerized translation programs that can produce these specialized types of braille. However, discussion of formatting considerations for such materials is beyond the scope of these guidelines. In most instances, colleges will want to contract out for such work unless specially trained staff are available to perform the transcription.

[24] The material which follows has been adapted from information provided by Braille Planet, a company which developed and sells some of the leading braille translation programs. The California Community Colleges Chancellor's Office gratefully acknowledges the work of Braille Planet in creating this excellent overview of braille.

[25] The number sign is not used in Nemeth Code which is the system used for braille mathematics.

To reduce the bulkiness of braille there is a system of braille contractions, or abbreviations known as Grade II Braille.[26] For general text production, materials should be provided in Grade II Braille. Grade II Braille is the format most commonly used by persons who are blind.

A braille contraction is a combination of one or more cells used to shorten the length of a word. For example, to write the word "mother," you would use a two-cell contraction rather than spelling out the word "mother." Just because a contraction can be used does not mean it should be used. The word "chemotherapy" contains the sequence "mother." Some braille translation programs are smart enough to know not to use the contraction for "mother" in "chemotherapy" (most of the braille rules are based on pronunciation; you do use the "mother" contraction in "smother," since this is pronounced like "mother").

In braille, if you have the letter "d" with a space or punctuation on either side, the "d" stands for the word "do." To show you really mean the isolated letter "d," precede it with a braille cell called the letter sign, dots 5-6. This alerts the braille reader to the fact that the next letter is to be read as a letter of the alphabet rather than an abbreviation.

Decoding braille by comparing inkprint and braille sequences can be tricky. The words "to," "into," and "by" are jammed up against the next word in braille. The words "a," "the," "for," "of," and "and" within braille are single cells which can be jammed up against each other. For example, "with" is a single cell with spaces on either side, but "with the" comes out as two cells jammed together. Numbers use the number sign followed by the letters a-j (312 comes out as #cab). One braille symbol means "dis" if it shows up in the beginning of a word, means "dd" if it shows up in the middle of a word, and is used for the period punctuation symbol if it shows up at the end of a word.

2. Basic Page Formatting

Another component of braille is format. When material is laid out on paper for the sighted reader, it is done so for visual effect. The reader is attracted to what is pleasing to the eye. However, in braille the object is maximization of space. Due to the bulkiness of braille volumes, you want to put as much material as possible on the page, while at the same time maintaining readability.

According to the Library of Congress, there are certain criteria for the output page. A page of braille contains a maximum of about 40 characters per line and 25 lines per page. For normal literary format, the braille page number appears at the upper right-hand corner of each page. However, you may need to change these values according to the specifications of your brailler.

[26] Grade I Braille does not contain any contractions (abbreviations), but it does represent capitalization, numbers, and punctuation with the correct braille symbols. Grade I Braille is used only for specialized applications where the braille contractions might be confusing, such as in spelling lists.

Because of the physical (rather than visual) nature of braille, format standards are especially important. Small differences in where text is placed on the page can tell the braille reader a lot about what they are reading. In any braille format, with or without a braille translation program, certain elements are especially crucial components of page layout. These include treatment of indent and runover, braille page numbers, inkprint page indicators, and running heads.

One of the major differences between braille and print format pertains to paragraphs. Rather than having an indent of five spaces, braille paragraphs have a two cell indent. The first character of the paragraph begins in cell three. There are no blank lines between paragraphs. Except in special circumstances, you do not put two or more spaces in a row in braille. Thus only one space is used between sentences.

When material is underlined or emphasized in print, there are different ways of indicating it. In braille there are italics marks which indicate something is being emphasized. A special symbol of dots 4-6 is placed before each word to be emphasized if there are three or fewer words in a row. If four or more words are emphasized, a double italics sign (dots 4-6, dots 4-6) is placed before the first word. A single italics sign (dots 4-6) is placed in front of the last emphasized word. Please note that you do not show all uses of inkprint emphasis in braille. Emphasis is only used in headings when it is necessary to preserve the distinctions shown in inkprint.

3. Indent and Runover

Instructions for braille transcribing often say indent to cell #. The farthest left position in which a cell may appear is cell 1. The farthest right position ranges from cell 30 to cell 40, depending on the carriage width of your brailler.

The placement of the first cell in a paragraph is called the indent. When transcribing instructions say, "indent to cell 3," put the first cell of that segment in cell 3, regardless of where the preceding line began. The position at which all subsequent lines of the same segment begin is the runover. When instructions say, "runover to cell 1," begin all subsequent lines of that segment in cell 1. If instructions say, "indent to cell 7, runover to cell 5," begin the first line of that segment of text in cell 7, and all subsequent lines in cell 5.

Sometimes the indent is a smaller number than the runover, as in, "indent to cell 1, runover to cell 5." In print, this is called outdenting, or a hanging indent. In braille, the position of the first cell of a segment of text is always called the indent, regardless of whether it is to the left or the right of the remaining text.

Another common braille instruction is block, as in, "block to cell 5." This simply means that the indent and the runover are equal to each other. It is the same as saying, "indent to cell 5, runover to cell 5."

4. Headings

There are three kinds of headings in braille: major headings, minor headings, and paragraph headings.

A major heading is centered, with a blank line before the heading, and a blank line after it. Some braille groups do not put a blank line after a major heading. Technically, this is a violation of the rules for braille.

A minor heading is blocked to cell five. This means that the heading starts on the fifth cell of the line. Any runover also starts on the fifth cell of the line. Usually, there is a skipped line before a minor heading, but not after a minor heading.

A paragraph heading is a line or phrase in italics (or some other emphasis) that labels a paragraph and is immediately followed by text on the same line. If this is done in inkprint, do the same in braille, using italics.

Braille rules require that there be at least one line of body text after a heading or headings on the same page. If there is not enough room on the page for the heading(s) and a line of body text, then the heading(s) need to be postponed to the top of the next braille page.

Before you start a braille project, you need to structure the document. You need to analyze how many levels of headings there are. You need to decide which of these should be done as a major heading, and which should be done as a minor heading.

5. Braille Page Numbers

As in print, each physical page in a braille volume is given a sequential page number. This braille page number merely orders the pages in the book. It does not provide the reader with any information about the pagination of the inkprint original. The braille page numbers appear in different spots in different formats.

6. Print Page Indicators

Many braille formats consider the braille reader's need to know where each inkprint page begins. When required, inkprint page indicators appear in addition to the sequential braille page numbers. Textbooks are one instance where this information is essential. With it, the braille reader can follow class discussion, locate homework assignments, and generally keep up with the users of the inkprint original.

A single print page usually occupies several braille pages. For example, if inkprint page 87 is found on three braille pages, then these are marked with inkprint page indicators 87, a87, and b87.

Inkprint page indicators are also extremely useful when transcribing anything that has a table of contents or an index. When inkprint page indicators are not included on the

braille page, indexes and such must be completely rewritten to refer to the braille page numbers. When inkprint page indicators are included, then page numbers may be transcribed exactly as they appear in print.

7. Running Heads

Many braille formats require that the title of the work being transcribed appear on the first line of every page, with an appropriate page number. When the title is too long to fit on one line, it is abbreviated. The running head never uses more than one line.

8. Literary v. Textbook Format

Whenever you begin a new transcribing project, with or without a braille translation program, there is some planning to do before you start data entry. There are a number of things to look for in the first scan through the book: check to see if there are a large number of foreign words, a table of contents or index, and graphs or pictures in the book.

One of the first things you must decide is whether to use textbook or literary format. Here are some guidelines for making this decision. Textbook format uses inkprint page indicators; literary format does not. When there is any possibility that the braille reader needs inkprint page indicators, use textbook format. Both formats may be used with or without running heads. Textbook and literary formats are also different from each other in the way they handle preliminary pages, indexes, and certain special cases such as tables and graphs.

In general, literary format allows the transcriber a certain amount of latitude. The overriding concern of textbook format is to represent things in braille EXACTLY as they appear in print. Anything added or omitted in the transcribing process must be explained in a transcriber's note.

9. Literary Format

In literary format without a running head, text appears on every line of the braille page. The braille page number appears in the rightmost cells of the first line, with at least three blank cells before the number. Text on the first line must break to allow room for this.

Literary format with a running head has text on lines 2 through 25. Line 1 begins with at least three blank cells, followed by the running head, at least three more blank cells, and the braille page number.

10. Textbook Format

The major difference between textbook and literary formats in the main body of text is inkprint page indicators. Textbook format has them; literary format doesn't. For textbook format with no running head, text appears on every line. On line 1, the inkprint page indicator appears in the rightmost cells with at least three blank cells before it. The

braille page number appears in the rightmost cells of the last line on the page. Again, at least three blank cells are placed before the braille page number.

Textbook format with a running head has text on lines 2 through 25. Line 1 begins with at least three blank cells, followed by the running head, at least three more blank cells, and the inkprint page indicator. Line 25 breaks the text to allow room for three blank cells and the braille page number at the end of the line.

Appendix V

Relevant Provisions of The Federal Copyright Law

Copyright Law Amendment
PL 104-197, December 1996

BACKGROUND

The free national library program of reading materials for visually handicapped adults administered by the National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress, was established by an act of Congress in 1931. The program was expanded in 1952 to include blind children, in 1962 to include music materials, and in 1966 to include individuals with physical impairments that prevent the reading of standard print.

From the beginning, this program was dependent upon the cooperation of authors and publishers who granted NLS permission to select and reproduce in special formats copyrighted works without royalty. Although many factors influence the length of time it takes to make a print book accessible in a specialized format, the period required to obtain permission from the copyright holder has sometimes been significant.

PUBLIC LAW 104-197

Under the Legislative Branch Appropriations Bill, H.R. 3754, Congress approved a measure, introduced by Senator John H. Chafee (R-R.I.) on July 29, 1996, that provides for an exemption affecting the NLS program. On September 16, 1996, the bill was signed into law by President Clinton.

The Chafee amendment to Chapter 1 of Title 17, *United States Code*, adds section 121, establishing a limitation on the exclusive rights in copyrighted works. The amendment allows authorized entities to reproduce or distribute copies or phonorecords of previously published nondramatic literary works in specialized formats exclusively for use by blind or other persons with disabilities.

The act making appropriations for the Legislative Branch for the fiscal year ending September 30, 1997, sets forth the Chafee amendment as follows:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that . . . and for other purposes, namely:

(a) IN GENERAL—Chapter 1 of Title 17, United States Code, is amended by adding after section 120 the following new section:

"SEC.121. Limitations on exclusive rights: reproduction for blind or other people with disabilities

"(a) Notwithstanding the provisions of sections 106 and 710, it is not an infringement of copyright for an authorized entity to reproduce or to distribute copies or phonorecords of a previously published, nondramatic literary work if such copies or phonorecords are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities.

"(b)

(1) Copies or phonorecords to which this section applies shall—

"(A) not be reproduced or distributed in a format other than a specialized format exclusively for use by blind or other persons with disabilities;

"(B) bear a notice that any further reproduction or distribution in a format other than a specialized format is an infringement; and

"(C) include a copyright notice identifying the copyright owner and the date of the original publication.

"(2) The provisions of this subsection shall not apply to standardized, secure, or norm-referenced tests and related testing material, or to computer programs, except the portions thereof that are in conventional human language (including descriptions of pictorial works) and displayed to users in the ordinary course of using the computer programs.

"(c) For purposes of this section, the term—

"(1) 'authorized entity' means a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities;

"(2) 'blind or other persons with disabilities' means individuals who are eligible or who may qualify in accordance with the Act entitled 'An Act to provide books for the adult blind,' approved March 3, 1931 (2 U.S.C. 35a; 46 Stat. 1487) to receive books and other publications produced in specialized formats; and

"(3) 'specialized formats' means braille, audio, or digital text which is exclusively for use by blind or other persons with disabilities."

(b) TECHNICAL AND CONFORMING AMENDMENT—The Table of Sections for Chapter 1 of Title 17, United States Code, is amended by adding after the item relating to section 120 the following:

"121. Limitations on exclusive rights: reproduction for blind or other people with disabilities."

Appendix VI

Chaptered Legislation, Bill Number AB 422 (Chaptered 09/15/99)

CHAPTER 37

FILED WITH SECRETARY OF STATE SEPTEMBER 15, 1999
APPROVED BY GOVERNOR SEPTEMBER 15, 1999
PASSED THE ASSEMBLY AUGUST 26, 1999
PASSED THE SENATE AUGUST 23, 1999
AMENDED IN SENATE JUNE 30, 1999
AMENDED IN SENATE JUNE 16, 1999
AMENDED IN ASSEMBLY MAY 25, 1999
AMENDED IN ASSEMBLY APRIL 5, 1999
INTRODUCED BY Assembly Member Steinberg
(Coauthors: Assembly Members Aroner, Corbett, Kuehl, and Thomson)
FEBRUARY 12, 1999

An act to add Section 67302 to the *Education Code*, relating to instructional materials.

LEGISLATIVE COUNSEL'S DIGEST

AB 422, Steinberg. Instructional materials: disabled students.

Under existing law, a publisher or manufacturer of instructional materials offered for adoption or sale in California is required to comply with specified requirements, including providing to the state, at no cost, the right to transcribe, reproduce, and distribute the material in braille, large print, recordings, or other accessible media for use by pupils with visual disabilities. This right includes computer diskette versions of instructional materials if made available to any other state, and those corrections and revisions as may be necessary.

This bill would require every individual, firm, partnership or corporation publishing or manufacturing printed instructional materials, as defined, for students attending the University of California, the California State University, or a California Community College to provide to the university, college, or particular campus of the university or college, for use by students at no additional cost and in a timely manner, any printed instructional material in unencrypted electronic form upon the receipt of a written request, provided that the university or college complies with certain conditions.

This bill would require that the computer files or electronic versions of printed instructional material maintain their structural integrity, as defined, be compatible with commonly used braille translation and speech synthesis software, and include corrections and revisions as may be necessary.

This bill would authorize the Chancellor of the California Community Colleges, the Chancellor of the California State University, and the President of the University of California to each establish one or more centers within their respective segments to process requests for electronic versions of instructional materials, as prescribed.

This bill would also require an individual, firm, partnership or corporation that publishes or manufactures nonprinted instructional materials for students attending the University of California, the California State University, or a California Community College to provide computer files or other electronic versions of the nonprinted instructional materials for use by students, subject to the same conditions for printed instructional materials, when technology is available to convert these nonprinted instructional materials to a format that maintains the structural integrity of the nonprinted instructional material that is compatible with braille translation and speech synthesis software.

This bill would provide that willful failure to comply with these requirements would be subject to sanctions under the law relating to full and equal access of disabled persons to public accommodations.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 67302 is added to the *Education Code*, to read:

67302. (a) An individual, firm, partnership or corporation that publishes or manufactures printed instructional materials for students attending the University of California, the California State University, or a California Community College, shall provide to the university, college, or particular campus of the university or college, for use by students attending the University of California, the California State University, or a California Community College, any printed instructional material in an electronic format mutually agreed upon by the publisher or manufacturer and the college or campus. Computer files or electronic versions of printed instructional materials shall maintain the structural integrity of the printed instructional material, be compatible with commonly used braille translation and speech synthesis software, and include corrections and revisions as may be necessary. The computer files or electronic versions of the printed instructional material shall be provided to the university, college, or particular campus of the university or college at no additional cost and in a timely manner, upon receipt of a written request that does all of the following:
(1) Certifies that the university, college, or particular campus of the university or college has purchased the printed instructional material for use by a student with a disability or that a student with a disability attending or registered to attend that university, college, or particular campus of the university or college has purchased the printed instructional material.
(2) Certifies that the student has a disability that prevents him or her from using standard instructional materials.

(3) Certifies that the printed instructional material is for use by the student in connection with a course in which he or she is registered or enrolled at the university, college, or particular campus of the university or college.
(4) Is signed by the coordinator of services for students with disabilities at the university, college, or particular campus of the university or college or by the campus or college official responsible for monitoring compliance with the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) at the university, college, or particular campus of the university or college.
(b) An individual, firm, partnership or corporation specified in subdivision (a) may also require that, in addition to the conditions enumerated above, the request shall include a statement signed by the student agreeing to both of the following:
(1) He or she will use the electronic copy of the printed instructional material in specialized format solely for his or her own educational purposes.
(2) He or she will not copy or duplicate the printed instructional material for use by others.
(c) If a college or university permits a student to directly use the electronic version of an instructional material, the disk or file shall be copy-protected or the college or university shall take other reasonable precautions to ensure that students do not copy or distribute electronic versions of instructional materials in violation of the Copyright Revisions Act of 1976, as amended (17 U.S.C. Sec. 101 et seq.).
(d) An individual, firm, partnership or corporation that publishes or manufactures nonprinted instructional materials for students attending the University of California, the California State University, or a California Community College shall provide computer files or other electronic versions of the nonprinted instructional materials for use by students attending the University of California, the California State University, or a California Community College, subject to the same conditions set forth in subdivisions (a) and (b) for printed instructional materials, when technology is available to convert these nonprinted instructional materials to a format that maintains the structural integrity of the nonprinted instructional materials that is compatible with braille translation and speech synthesis software.
(e) For purposes of this section:
(1) "Instructional material or materials" means textbooks and other materials written and published primarily for use by students in postsecondary instruction that are required or essential to a student's success in a course of study in which a student with a disability is enrolled. The determination of which materials are "required or essential to student success" shall be made by the instructor of the course in consultation with the official making the request pursuant to paragraph (4) of subdivision (a) in accordance with guidelines issued pursuant to subdivision (i). "Instructional material or materials" does not include nontextual mathematics and science materials until the time software becomes commercially available that permits the conversion of existing electronic files of the materials into a format that is compatible with braille translation software or alternative media for students with disabilities.
(2) "Printed instructional material or materials" means instructional material or materials in book or other printed form.
(3) "Nonprinted instructional materials" means instructional materials in formats other than print, and includes instructional materials that require the availability of electronic equipment in order to be used as a learning resource, including, but not necessarily limited to, software programs, video disks, and video and audio tapes.
(4) "Structural integrity" means all of the printed instructional material, including, but not limited to, the text of the material, sidebars, the table of contents, chapter headings and

subheadings, footnotes, indexes, glossaries, and bibliographies. "Structural integrity" need not include nontextual elements such as pictures, illustrations, graphs, or charts. If good faith efforts fail to produce an agreement pursuant to subdivision (a) between the publisher or manufacturer and the university, college, or particular campus of the university or college, as to an electronic format that will preserve the structural integrity of the printed instructional material, the publisher or manufacturer shall provide the instructional material in ASCII text and shall preserve as much of the structural integrity of the printed instructional material as possible.

(5) "Specialized format" means braille, audio, or digital text that is exclusively for use by blind or other persons with disabilities.

(f) Nothing in this section shall be construed to prohibit a university, college, or particular campus of the university or college from assisting a student with a disability by using the electronic version of printed instructional material provided pursuant to this section solely to transcribe or arrange for the transcription of the printed instructional material into braille. In the event a transcription is made, the campus or college shall have the right to share the braille copy of the printed instructional material with other students with disabilities.

(g) The Chancellor of the California Community Colleges, the Chancellor of the California State University, and the President of the University of California may each establish one or more centers within their respective segments to process requests for electronic versions of instructional materials pursuant to this section. If a segment establishes a center or centers, each of the following shall apply:

(1) The colleges or campuses designated as within the jurisdiction of a center shall submit requests for instructional material made pursuant to paragraph (4) of subdivision (a) to the center, which shall transmit the request to the publisher or manufacturer.

(2) If there is more than one center, each center shall make every effort to coordinate requests within its segment.

(3) The publisher or manufacturer of instructional material shall be required to honor and respond to only those requests submitted through a designated center.

(4) If a publisher or manufacturer has responded to a request for instructional materials by a center, or on behalf of all the centers within a segment, all subsequent requests for these instructional materials shall be satisfied by the center to which the request is made.

(h) Nothing in this section shall be deemed to authorize any use of instructional materials that would constitute an infringement of copyright under the Copyright Revision Act of 1976, as amended (17 U.S.C. Sec. 101 et seq.).

(i) The governing boards of the California Community Colleges, the California State University, and the University of California shall each adopt guidelines consistent with this section for its implementation and administration. At a minimum, the guidelines shall address all of the following:

(1) The designation of materials deemed "required or essential to student success."

(2) The determination of the availability of technology for the conversion of nonprinted materials pursuant to subdivision (d) and the conversion of mathematics and science materials pursuant to paragraph (4) of subdivision (e).

(3) The procedures and standards relating to distribution of files and materials pursuant to subdivisions (a) and (b).

(4) Other matters as are deemed necessary or appropriate to carry out the purposes of this section.

(j) Failure to comply with the requirements of this section shall be a violation of Section 54.1 of the Civil Code.

Appendix VII

Sample Letter for Initital Contact with Publishers

Date:

Publisher's Name/Address
Attn:

Dear Sir or Madam:

The purpose of this letter is to advise you that **name of college** will be requesting your company's assistance in providing legally required accommodations for students with disabilities attending **(Name of College)**. *California Education Code* Section 67302 requires publishers of instructional materials to provide those materials to institutions of public postsecondary education in California in an electronic format, so that colleges can meet their obligations to provide instructional materials in alternate media to their students with disabilities. For your convenient reference, we have enclosed the applicable provisions of law.

The **(Name of College)** may, from time to time, request electronic text pursuant to this law. Section 67302 requires publishers to provide electronic files in a format which is compatible with commonly used braille translation and screen-reading software used by persons with disabilities. Therefore, we will generally ask that you provide files in **name of platform and file format.** If you believe you will be unable to provide electronic files in this format, please let us know immediately so that we can discuss other alternatives with you.

California law requires that you provide the electronic text at no cost and in a timely manner. Requests from **(Name of College)** will be forwarded from **(Name/Title of Designated Individual at the Community College)**. Attached is a sample copy of the Electronic Text Alternate Media Request form which we will be using to submit these requests.

If you have any questions, please contact **(Name/Title of Designated Individual at the Community College)** at **(Insert address/telephone number/FAX/e-mail address)**.

Sincerely,

(Signature of College Bookstore Manager)

Appendix VIII

Sample Electronic Text Request Documentation Form

NOTE: In some instances, satisfying a request by a student to receive instructional materials in an alternate media may require the college to obtain electronic text from the publisher or manufacturer of the instructional material pursuant to *California Education Code* Section 67302. In such cases, the accommodation request must be accompanied by a completed copy of this form with necessary documentation attached as specified below.

STUDENT INFORMATION

Name: _____

Address: _____

Telephone: _____ FAX: _____

E-Mail Address: _____ Social Security Number: _____

Providing your Social Security Number is strictly voluntary. The Privacy Act of 1974 (PL 93-574) and the Information Practices Act of 1977 (Civil Code Sections 1798, et seq.) require that this notice be provided when collecting personal information from individuals. The Community College District and the State of California use information requested on this form for the sole purpose of determining whether a student is eligible to receive special services. Personal information recorded on this form will be kept confidential in order to protect against unauthorized disclosure. Portions of this information may be transferred to other entities for the purpose of determining appropriate alternate media specifications. However, disclosure to these parties is done in strict accordance with current statutes regarding confidentiality.

REGISTRATION/ENROLLMENT INFORMATION

District: _____ College: _____

Mailing Address: _____

_____

Telephone: _____ FAX: _____

I have or will ❑ Register or ❑ Enroll in the academic term identified below:

❑ Fall 20-___/20-___ ❑ Spring 20-___/20-___ ❑ Summer 20-___/20-___

❑ Other (specify): _____

ACQUISITION OF STANDARD INSTRUCTIONAL MATERIAL IN ORIGINAL FORMAT

One of the conditions identified below must be substantiated for each request:

❑ I have purchased or ordered the standard instructional material (*Attach copy of original sales receipt or bookstore order form.*)

❑ The instructional material is supplied by the college to all students.

_____ _____

Signature of Instructor or Other Official *Date*

❑ The standard instructional material has been purchased or ordered on my behalf by the Department of Rehabilitation or some other agency. (*Attach copy of sales or ordering transaction.*)

❑ Other (specify): _____

VERIFICATION OF DISABILITY

One of the conditions identified below must be substantiated:

I have a disability that prevents me from using standard instructional materials. Documentation verifying this disability is either:

❑ Attached to this form or ❑ On file with the DSP&S office.

_____ _____

Signature of Instructor or Other Official *Date*

SECURITY OF ELECTRONIC TEXT

I understand that any electronic text, which may be supplied to me, is solely for my own educational purposes. I will not copy or distribute any such electronic text in violation of the Copyright Revisions Act of 1976, as amended (17 U.S.C. Sec. 101 et seq.). I understand that failure to abide by this agreement may constitute a violation of the Student Code of Conduct, and/or of the college policy regarding responsible use of DSP&S services. I have received and read a copy of the policy on responsible use of DSP&S services and I understand that a violation of that policy, including improper distribution of electronic text, may result in suspension of DSP&S Services.

_____ _____

Signature of Instructor or Other Official *Date*

COURSE INSTRUCTOR CERTIFICATION

Course Code: _____ **Course Title**: _____

Instructional Material Title: _____

General Description of Course Material: ❑ Textbook ❑ Workbook ❑ Other (specify) _____

Original Format of Instructional Material: ❑ Printed ❑ Nonprinted

I hereby certify that the instructional material is required or essential to the above student's success in the course in which the student is or will be registered or enrolled.

_____ _____

Course Instructor's Signature *Date*

COURSE INSTRUCTOR CERTIFICATION

Course Code: _____ **Course Title**: _____

Instructional Material Title: _____

General Description of Course Material: ❑ Textbook ❑ Workbook ❑ Other (specify) _____

Original Format of Instructional Material: ❑ Printed ❑ Nonprinted

I hereby certify that the instructional material is required or essential to the above student's success in the course in which the student is or will be registered or enrolled.

_____ _____

Course Instructor's Signature *Date*

COURSE INSTRUCTOR CERTIFICATION

Course Code: _____ **Course Title**: _____

Instructional Material Title: _____

General Description of Course Material: ❑ Textbook ❑ Workbook ❑ Other (specify) _____

Original Format of Instructional Material: ❑ Printed ❑ Nonprinted

I hereby certify that the instructional material is required or essential to the above student's success in the course in which the student is or will be registered or enrolled.

_____ _____

Course Instructor's Signature *Date*

Appendix IX

Sample Electronic Text Alternate Media Request

Date:

Publisher's Name/Address
Attn:

Dear Sir or Madam:

The purpose of this letter is to request your assistance in providing legally required accommodations for a student with a disability attending **(Name of College)**. *California Education Code* Section 67302 requires publishers of instructional materials to provide those materials to institutions of public postsecondary education in California in an electronic format, so that colleges can meet their obligations to provide instructional materials in alternate media to their students with disabilities.

The **(Name of College)** is requesting electronic text **(specify platform and file format)** of **(Name of Instructional Material).** The enclosed certification complies with the requirements set forth in *California Education Code* Section 67302:

The electronic text supplied by a publisher may be used with translation software to produce hardcopy Braille or may be accessed with speech synthesizers or refreshable Braille displays. In the event that the electronic text will be made available to the student, he or she will be asked to sign an agreement stipulating that the electronic text will be used solely for his or her own educational purposes, and that s/he will not copy or duplicate the instructional material for use by others. In addition, the college will take other reasonable precautions to ensure that students do not copy or distribute electronic versions of instructional materials in violation of the Copyright Revisions Act of 1976, as amended (17 U.S.C. Sec. 101 et seq.).

The California law requires that you provide the electronic text at no cost and in a timely manner. We therefore request that it be supplied in the format specified above by **(Insert Date)**. If you are unable to supply electronic text in the specified format, will be unable to provide it by the date requested, or if you have any questions, please contact me at **(Insert address/telephone number/FAX/e-mail address)**.

Sincerely,

(Signature of Designated Individual at the Community College)

Sample DSP&S/ADA Coordinator Certification

- ❑ I request that **(Name of Publisher)** supply electronic text **(specify platform and file format)** of **(Name of Instructional Material)** for use by **(Name of Student)**. The electronic text is needed in order to provide instructional materials in alternate media for this student who has a verified disability that prevents him or her from using standard instructional materials.
- ❑ The student is enrolled in a course at the college or will be registered for such a course in an upcoming term.
- ❑ The instructional material is required or essential to the student's success in the course.
- ❑ The standard instructional material has been purchased by the student or on behalf of the student by the college.

Signature of DSP&S/ADA Coordinator **Date**

Appendix X

STATE OF CALIFORNIA
CHANCELLOR'S OFFICE - CALIFORNIA COMMUNITY COLLEGES

ALTERNATE MEDIA CENTER (ELECTRONIC TEXT)
PROGRAM PARTICIPATION AGREEMENT FORM
AMFORM3.DOC

Date:

To: **Chancellor's Office – California Community Colleges**
Attn. DSP&S Coordinator
1102 Q Street – 3rd Floor
Sacramento, CA 95814-6511

From: **District/College Name/Address:**
Attn:

The **(Name of District or College)** hereby requests designation as an Alternate Media Center for the purpose of providing electronic text to **(Names of Colleges to be served)** for use in accommodating students with disabilities. **(Name of District or College)** will operate the Alternate Media Center in compliance with *Education Code* Section 67302 and will be responsible for the following functions:

- ❑ Listing any instructional materials it obtains or produces in alternate media on the High Tech Center Training Unit, Book Exchange Website to allow for the coordination of requests within the Community College system.
- ❑ Checking to see if a requested electronic text is listed on the HTCTU Book Exchange as already being available from another college or Alternate Media Center and, if so, contacting that college or center to request the text.
- ❑ Establishing back-up protocols and maintaining a library of electronic text produced by the Center or obtained from publishers.
- ❑ Forwarding electronic text supplied by a publisher to the requesting college in a timely manner. Responding, in a timely manner, to requests for copies of electronic text already in its library from any colleges identified above.
- ❑ Responding, to the extent possible, to requests for copies of electronic text in the Center's library from other Alternate Media Centers or from colleges or universities not served by the Center.
- ❑ Implementing measures designed to ensure that electronic text will not be distributed to individuals or organizations other than as provided herein.

President/Superintendent CCD **Date**

Chancellor's Office DSP&S Coordinator **Date**

Appendix XI

Glossary of Terms

AB 422
Assembly Bill 422 (Ch. 37, Statutes of 1999) was authored by Assemblymember Darrell Steinberg. This bill added Section 67302 to the *California Education Code* effective January 1, 2000. It requires every individual, firm, partnership or corporation publishing or manufacturing printed instructional materials, as defined, for students attending the University of California, the California State University, or a California Community College to provide to the university, college, or particular campus of the university or college, for use by students at no additional cost and in a timely manner, any printed instructional material in unencrypted electronic form upon the receipt of a written request, provided that the university or college complies with certain conditions.

Accessible formats
With reference to printed materials, accessible formats include braille, large print, audio and electronic text formats.

Accommodation
Altering existing facilities, instruction, and/or services so they are readily accessible to and usable by individuals with disabilities.

ADA
The Americans with Disabilities Act of 1990 (42 U.S.C. 12100 et seq.). This federal civil rights law guarantees and defines equal access for people with disabilities.

Alternate Media
Generally refers to text or other materials produced in a specialized format intended for use by persons with disabilities. Types of alternate media include, but are not limited to, braille, large print, audio material, certain types of electronic files, and video with closed or open captioning.

Alternate Media Center
A campus or state-wide facility for the production of text in alternate media.

ASCII text
American Standard Code of Information Interchange. ASCII provides a numerical equivalent for the letters and symbols which can be displayed on a computer screen. The most basic of all electronic text formats.

Audio format
Text materials spoken by a human reader or speech synthesizer and recorded on audio tape, CD ROM, DVD, MP3, or other electronic media.

BCP
Budget Change Proposal. This is the process used by California state agencies, such as the Chancellor's Office for the California Community Colleges, to request changes in their level of funding.

Book Exchange
A web based electronic database for retrieval of information about textbooks and other print materials available in alternate media: http://htcoff1.htctu.fhda.edu/tango/bookex/bookex.html.

Braille
Braille is a system of tactile reading and writing in which raised dots represent the letters of the alphabet. Braille also contains equivalents for punctuation marks and provides symbols to show letter groupings. Braille is read by moving the hand or hands from left to right along each line. Both hands are usually involved in the reading process, and reading is generally done with the index fingers. The average reading speed is about 125 words per minute, but greater speeds of up to 200 words per minute are possible.

Braille cell
The basic unit of braille is the braille cell. It is composed of six dots: the upper left dot is dot 1, the middle left dot is dot 2, the lower left dot is dot 3, the upper right dot is dot 4, the middle right dot is dot 5, and the lower right dot is dot 6. From these six dots you can get 64 possible combinations.

Braille formats
When material is laid out on paper for the sighted reader, it is done for visual effect. However, in braille the object is maximization of space. Due to the bulkiness of braille volumes, you want to put as much material as possible on the page, while at the same time maintaining readability. There are different formats for literary works and textbooks. (See below). Because of the physical (rather than visual) nature of braille, format standards are especially important. Small differences in where text is placed on the page can tell the braille reader a lot about what they are reading. In any braille format, with or without a braille translation program, certain elements are especially crucial components of page layout. These include treatment of indent and runover, braille page numbers, inkprint page indicators, and running heads.

Braille page
One single-spaced print page equals two to three braille pages.

Braille printers
Also called embossers. The devices used to produce hard copy braille.

Braille production
The process of translating, proofing, formatting and printing braille documents.

Braille translation
The process of translating inkprint or electronic documents into Grade II, Nemeth Code or other forms of braille.

Braille translation software
Specialized software capable of accurately translating text into Grade II braille and preserving simple page formatting.

California Code of Regulations
The *California Code of Regulations* (CCR) contains the regulations that have been formally adopted by California state agencies, including those adopted by the Board of Governors of the California Community Colleges.

CCTV
Television equipment used by persons with low vision to magnify inkprint and other text materials for more convenient viewing, usually of desktop size.

CD-ROM
Compact Disk - Read Only Media. CD and DVD (Digital Versatile Disk) media are high capacity storage formats which can be used to save and retrieve text, audio and video information.

Certified Transcriber
An individual trained in the proper transcription of printed materials into braille who has been certified by the National Library Service for the Blind and Physically Handicapped of the Library of Congress.

Compatible with braille translation software
An electronic text file which can be translated into braille using commonly available braille translation software. Files provided by publishers pursuant to AB 422 are required to be in such a format.

Convert the file
Generally refers to converting a file from one format to another (i.e. PageMaker to Microsoft Word).

Department of Rehabilitation
The state of California agency whose mission is to assist Californians with disabilities in obtaining and retaining employment and maximizing their ability to live independently in their communities.

Distance education
Generally refers to one of a variety of instructional delivery methods which can include one or two-way (interactive) television, web based courses, e-mail or software. In all cases, participating students attend most or all classes from home, their worksite or other location.

Dot
The smallest element of a braille cell.

Download
To copy the contents of an electronic file from one location to another. Possibly across the internet, from one location to another on a campus network or to removable media.

DSP&S
Disabled Students Programs and Services. Established in 1976 through the passage of AB 77 (Lanterman), which funded support services and instructional programs for students with disabilities in the California Community Colleges so that they can participate fully in their educational activities.

Electronic form
A digital representation of a paper form. Generally used for data collection.

Electronic text
Text in MS Word, ASCII or other proprietary format. Also called "e-text".

Electronic versions of instructional materials
Textbooks, tests, catalogs or other materials stored on floppy, zip, CD ROM, DVD or other storage media. Exact or similar in appearance to inkprint versions of the same material.

Elements
Generally refers to page formatting elements such as headings, subheadings, headers, footers, sidebars and marginalia of various types.

File format
The unique public or proprietary file storage format in which a document has been saved.

Formatting E-text
Generally refers to the process of preserving the page location or text content of titles, paragraphs, columns, sidebars, footnotes, headers, footers, graphics, etc when scanning pages or moving documents between file formats.

Grade II braille
To reduce the bulkiness of braille there is a system of braille contractions, or abbreviations known as Grade II Braille. For general text production, materials should be provided in Grade II Braille. Grade II braille is the format most commonly used by persons who are blind.

Graphics
Usually refers to charts, drawings, photographs, animated objects, or digital video.

Hardcopy
Text printed on paper.

High Tech Center Training Unit
Located at DeAnza College, a training and support facility for community college faculty wishing to acquire or improve teaching skills, methodologies, and pedagogy in Assistive and Instructional Computer Technology.

Inkprint
Text printed on paper.

Instructional material
A general term referring to textbooks, multimedia, tests, forms, class handouts or other materials written and published primarily for use by students in postsecondary instruction.

Large Print
Inkprint or electronic text displayed at a size greater than or equal to 14 point.

Literary format
A particular method of formatting literary works and other general purpose texts in braille. In literary format without a running head, text appears on every line of the braille page. The braille page number appears in the rightmost cells of the first line, with at least three blank cells before the number.

Nemeth Code
Letters in the Nemeth Code are those of standard braille, but nearly every other cell has a different meaning than in standard English braille. Nemeth numbers for the digits 1-9, 0 are the letters a-i, j except that they are dropped one row. This number definition is possible because the letters a-j are all upper cells. In SEB most of these dropped cells are punctuation marks, so a blind person learning math must learn to interpret dropped cells as punctuation marks when reading text and as numbers when reading math.

OCR
The United States Department of Education, Office for Civil Rights. This is the federal entity charged with enforcement of civil rights, including the rights of persons with disabilities, in educational institutions.

Page layout
The arrangement of text and graphics on an inkprint or electronic page.

Proofread
Within the context of alternate media, proofreading might mean, in addition to checking for errors in spelling, correcting page formatting errors, formatting braille documents so they maintain critical content design elements, or listening to the audio content of a recorded book to assure that it remains faithful to the inkprint version.

Proprietary formats
Refers to text formatting, storage and retrieval methods often used by textbook publishers and printers. Examples include Quark Express, FrameMaker, PageMaker and PDF.

Recorded books
Also known as books on tape. Thousands of popular titles and textbooks are available through Recordings for the Blind and Dyslexic and other agencies.

Refreshable braille display
When used in conjunction with screen reading software, these devices provide the text content of a document, web page or other information displayed on the computer screen in "real-time" braille.

RFB&D
Recording for the Blind & Dyslexic was founded in 1948 to help blind and disabled veterans take full advantage of the GI Bill educational benefits. RFB&D is a volunteer organization whose sole purpose is to provide educational materials in recorded and computerized formats at every academic level. RFB&D materials are for all people unable to read standard print because of a visual, perceptual, or other physical disability.

RTF
RTF (Rich Text Format) is a file format that lets you exchange text files between different word processors in different operating systems. For example, you can create a file using Microsoft Word 97 in Windows 95, save it as an RTF file (it will have a ".rtf" file name suffix), and send it to someone who uses WordPerfect 6.0 on Windows 3.1 and they will be able to open the file and read it. (In some cases, the RTF capability may be built into the word processor. In others, a separate reader or writer may be required.).

Scanning
The process of imaging printed pages with a desktop or commercial scanner, using optical character recognition software to convert the scanned pages to text, correcting text misrecognition errors and reformatting as necessary to preserve the structural integrity of the document.

Screen reading software
Software used by persons who are blind or have learning disabilities to verbalize the text contents of the computer screen. Many screen reading programs are highly sophisticated and capable of reading very complex page formats and web pages.

Specialized formats
See proprietary formats.

Speech synthesis software
Software used with a computer's sound card to reproduce near-human sounding speech.

Speech synthesizer
Hardware/software used by speech synthesis software to produce near human sounding speech.

Structural integrity
Structural integrity' means all of the printed instructional material, including, but not limited to, the text of the material, sidebars, the table of contents, chapter headings and subheadings, footnotes, indexes, glossaries, and bibliographies. 'Structural integrity' need not include nontextual elements such as pictures, illustrations, graphs, or charts.

Tables
A text formatting protocol used to arrange information in rows and columns.

Tactile graphics
Graphic images produced as raised images. Such raised images may be produced by a device using heat and heat-sensitive paper. This enables high quality tactile graphics, suitable for blind and visually impaired people, to be made quickly and easily. Some tactile graphics can also be produced using a braille embosser.

Tapes
Refers to audio tapes of books or other materials read aloud by a human reader or by a speech synthesizer.

Textbook format
The format used for producing textbooks in braille. The major difference between braille textbook and braille literary formats in the main body of text is inkprint page indicators. Textbook format has them; literary format doesn't. For textbook format with no running head, text appears on every line.

Title 5
That portion of the *California Code of Regulations* governing the administration of education in the state of California. The regulations of the Board of Governors of the California Community Colleges appear in Division 6 of Title 5.

Transcription
To move the content of a document from one format to another as in transcribing the content of audio tape to text or from print to braille.

Web Pages
Documents formatted in one of several page layout or "mark up" languages including html, dhtml and xml.

Word processing formats
Refers to public and proprietary software systems used for embedding non-ASCII characters into a document for the purpose of formatting the appearance of information on the computer screen. Examples of word processing formats include Microsoft Word and WordPerfect.

Zip files
Zip files are "archives" used for distributing and storing files. Zip files contain one or more files. Usually the files "archived" in a Zip are compressed to save space. Zip files make it easy to group files and make transporting and copying these files faster.